JPRS 74880

7 January 1980

China Report

AGRICULTURE

No. 65

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

50272-101

REPORT DOCUMENTATION PAGE	**1. REPORT NO.** JPRS 74880	**2.**	**3. Recipient's Accession No.**

4. Title and Subtitle
CHINA REPORT: AGRICULTURE, No. 65

5. Report Date
7 January 1980

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Joint Publications Research Service
1000 North Glebe Road
Arlington, Virginia 22201

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
As above

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This serial report contains information on agricultural activities in China.

17. Document Analysis a. Descriptors

CHINA
Agriculture
Weather
Statistics
Crops
Animal Husbandry
Forestry
Soil
Pisciculture

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group 2

18. Availability Statement
Unlimited Availability
Sold by NTIS
Springfield, Virginia 22161

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page)
UNCLASSIFIED

21. No. of Pages
67

22. Price

(See ANSI-Z39.18)

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

JPRS 74880

7 January 1980

CHINA REPORT

AGRICULTURE

No. 65

CONTENTS

PAGE

I. GENERAL INFORMATION

NATIONAL

China Records Achievements in Planting Shelter-Forests (XINHUA, 28 Nov 79) 1

PRC Transforms Coastal Areas by Planting Grass (XINHUA, 24 Nov 79) 2

Purchase Price for Grain and Edible Oils Readjusted Throughout China (SHICHANG, 15 Oct 79) 3

Effect of 'Male Gametocide No 1' To Induce Paddy Rice Male Sterility (ZHIWU XUEBAO, Dec 78) 4

'Beijing Radio' on Strengthened Field Management (Beijing Domestic Service; 8 Dec 79) 20

PRC Holds National Conference on Silkworm Cocoon Production (XINHUA, 12 Dec 79) 22

Japanese Experts Achieve High Rice Yield in Jilin (XINHUA, 8 Dec 79) 24

PRC Uses New Methods To Save Saline Farmland (XINHUA, 10 Dec 79) 25

Economic Journal Discusses Use of Agricultural Machinery (Tan Jinwei; JINGJI GUANLI, 25 Aug 79) 27

'XINHUA' Interviews Institute Official on Soil Utilization (XINHUA, 13 Dec 79) 37

CONTENTS (Continued) Page

Briefs
Agricultural Society Established 39

BEIJING

'BEIJING RIBAO' on Scientific Methods Applied to Pig Raising (XINHUA, 4 Dec 79).. 40

FUJIAN

Briefs
Sugar Production 41

GUANGDONG

Rural Procurement Prices Increased (Guangdong Provincial Service, 25 Oct 79)................ 42

Briefs
Guangdong Agriculture Forum 43
Guangzhou Cuts Commodity Prices 43

GUIZHOU

Economic Problems in Guizhou Forestry Communes (Zhang Zhilin, et al; RENMIN RIABO, 8 Oct 79)........... 44

HEILONGJIANG

Two-Man Work Unit Achieves Huge Grain Yield (Zhou Peiqi; RENMIN RIBAO, 9 Oct 79)..................... 47

Briefs
Heilongjiang Dairy Products 49
Heilongjiang Prefecture Zoning 49

HUNAN

Briefs
Hunan Water Conservancy Project 50

JIANGSU

Jiangsu Adjusts Commune Enterprises (RENMIN RIBAO, 11 Oct 79)................................ 51

Briefs
Pesticide Prices 53

CONTENTS (Continued) Page

NEI MONGGOL

Briefs

Nei Monggol Pastoral Bases 54

XINJIANG

Briefs

Xinjiang Cotton Picking 55
Xinjiang Water Resources 55

II. PUBLICATIONS

Table of Contents of 'KUNGHONG ZHISHI' No 3, May 1979
(KUNCHONG ZHISHI, May 79)................................ 56

Table of Contents of 'KUNCHONG ZHISHI' No 4, July 1979
(KUNGHONG ZHISHI, Jul 79)................................ 58

Table of Contents of 'ZHONGGUO SHOUYI ZAZHI' No 6, June 1979
(ZHONGGUO SHOUYI ZAZHI, Jun 79)......................... 61

Table of Contents of 'ZHONGGUO SHOUYI ZAZHI' No 8, August 1979
(ZHONGGUO SHOUYI ZAZHI, Aug 79)......................... 63

I. GENERAL INFORMATION

CHINA RECORDS ACHIEVEMENTS IN PLANTING SHELTER-FORESTS

OW282122 Beijing XINHUA Domestic Service in Chinese 0322 GMT 28 Nov 79 OW

[Excerpts] Beijing, 28 Nov--In combating wind and soil errosion over the past 30 years since the founding of new China, scientific and technical personnel of research units in northwest, north and northeast China have for many years observed, tested and studied the techniques of building farmland shelter-forests, sand-fixation forests and water and soil conservation forests, as well as the beneficial results of these forests. Many positive results have been obtained. Achievements in 15 scientific research projects in this respect were commended at the 1978 National Science Conference.

With the assistance of the local counties and forest farms, the afforestation office of the Forestry Research Department under the Xinjuaign Agricultural Science Institute has for many years made observations of the shelter-belt network formed by farmland protection forests, sand protection forests and sand-fixation forests in Turpan and other localities. At the same time, the office has also made thousands of observations of various types of forest-belts in 42 counties and forest farms, thereby obtaining large amounts of useful data.

In Nei Monggol, the Juud League Forestry Science Institute and the Taipingdi commune in Chifeng County have, after some 10 years of joint efforts, successfully built a well planned farmland protection forest-belt in the commune.

China has also obtained gratifying results in planting sand-fixation forests. The Zhanggutai Sand-Fixation Afforestation Institute has worked hard for many years on drifted sand in the Horqin sand area. It has adopted the method of planting shrubs first and then trees and using shrubs to consolidate the sand, so as to enable the growth of camphor pines. By this way, it has successfully built camphor pine forests on drifted sand areas.

In building forests to conserve water and soil in the middle reaches of China's Huanghe River, Scientific Research Departments in Shaanxi and Gansu have also obtained initial success in afforestation, land leveling and in research on shrub and tree growing.

CSO: 4007

PRC TRANSFORMS COASTAL AREAS BY PLANTING GRASS

OW240758 Beijing XINHUA in English 0709 GMT 24 Nov 79 OW

[Text] Hangzhou, 24 Nov (XINHUA)--China is planting a kind of salt-resistant and water-tolerant perennial grass in its coastal areas in an effort to transform once barren sea beaches and make them productive.

At the end of October, 31,600 hectares of sea beaches had been sown to the grass, known as Spartina Anglica C.E. Hubbard, three times the acreage thus planted last year.

This strain of grass can effectively intercept silt and speed up silt deposition, thereby raising the level of sea beaches. This enables farmland to be created out of the sea beaches.

Wenling County in Zhejiang Province sowed 270 hectares to grass on its beaches from 1966 to 1968, and the beaches had risen 80 centimeters by 1973. Since the grass can desalinize the soil and its roots easily rot underground, it helps to fertilize the soil. The barley sown in this area in the first half of last year yielded 2,400 kilograms per hectare, 1,462 kilograms more than the per hectare output on barren sea beaches.

The grass is also a good forage. In Qidong County, Jiangsu Province, three sheep farms keep [illegible],000 sheep by feeding them on this type of grass. The county is also trying to raise cattle, pigs and fish on the grass.

At present, Chinese experts are carrying out further experiments to improve planting techniques and raise output, and to find other uses for the grass.

CSO: 4020

PURCHASE PRICE FOR GRAIN AND EDIBLE OILS READJUSTED THROUGHOUT CHINA

Beijing SHICHANG in Chinese 15 Oct 79 p 1

[Text]

Commodity	Grade	1978 Price	1979 Price	Percentage Increase
Wheat	3rd	13.61	16.48	21.09
Xian Rice (indica)	Early-maturing 3rd	9.52	11.56	21.43
Jing Rice (formerly Geng Rice)(japonica)	3rd	12.46	14.86	19.26
Millet	Medium	9.27	11.39	22.87
Corn	Yellow Medium	8.80	10.72	21.82
Sorghum	Husked Medium	8.75	10.41	18.97
Soybeans	Yellow 3rd	20.06	23.07	15.00
CEREAL GRAIN AVERAGE		10.64	12.86	20.86
Peanut Oil		90.00	115.00	27.78
Sesame-seed Oil	(Solvent Extraction?)	102.45	120.00	17.13
Sesame-seed Oil	(Fine Crushed)	106.01	128.00	20.74
Cottonseed Oil	(Semi-finished?)	57.61	72.00	24.98
Weisheng Oil	(Fine Grade Cottonseed Oil)	67.45	84.00	24.54
Rapeseed Oil		83.95	106.00	26.27
Soybean Oil		99.76	116.00	16.28
Tea-seed Oil		108.00	118.00	9.26
EDIBLE PLANT OIL AVERAGE		81.57	101.94	24.97

Units: 100 jin, Yuan

CSO: 4007

EFFECT OF 'MALE GAMETOCIDE NO 1' TO INDUCE PADDY RICE MALE STERILITY

Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 4, Dec 78
pp 305-312

[Article by the Guangdong Provincial Crop Heterosis Utilization Research and Coordination Group; South China Agricultural College Department of Agriculture Crop Ecology and Genetics Laboratory; South China Agricultural College Biophysics Laboratory: "The Effect of 'Male Gametocide No 1' to Induce Male Sterility in Paddy Rice and A Study of Its Principle*"]

[Text] Abstract

"Male Gametocide No 1" consists mainly of methyl arsinic acid zinc ($CH_3AsO_3Zn.\ H_2O$). When sprayed during the filling period of the pollen content of paddy rice, it is absorbed by the plant. $CH_3AsO_3H_2$ is quickly transported to the panicles destroying the normal respiration and metabolism during the growth process of stamen. The methabolism of energy is also hindered and the pollen loses its germination strength or the pollen tube cannot elongate, thus causing non-genetic male sterility. Effectiveness of the gametocide can reach 95 to 100 percent.

Beginning in 1970, we began to prove that methyl arsinic acid zinc was more effective as a male gametocide of paddy rice by experimenting with percolates of α-naphthyl acetate, 2,4-D, Gelsemium elegans, Strophanthus divaricatus, Lycoris radiata and others totaling more than 150 chemical and medicinal substances and Chinese medicinal herbs. After repeated experiments, we took methyl arsinic acid zinc as the main ingredient and made the "male gametocide No 1." To provide guidance in male gametocide technique and to provide theoretical foundations for seeking new male gametocides, we launched a study of the effects and principles of the "male gametocide No 1."

---

*Other coordination units which participated in research for this article are the Guangdong Provincial Research Institute of Testing, Experimentation and Analysis, Guangzhou City Baiyunshan Agricultural Farm's Agricultural Science Institute and Conghua County Agricultural Science Institute. Special thanks are also given to the Shanghai Atomic and Nuclear Institute for its support and coordination in the preparation of radioactive ^{74}As and the synthesis of ^{74}As-methyl arsinic acid zinc.

Ingredients and Method

1. Twelve varieties of paddy rice were used in the experiments including "zhen zhu ai", "zhai ye qing", "guang lu ai No 4", "gang zhi zhan", and "xi nan ai".

2. Male gametocides used in the experiments: Between 1971 and 1974, the "dao jiao qing" wettable powder containing 20% of methyl arsinic acid zinc or methyl arsinic acid zinc powder of 95% purity with appropriate amounts of mollifier to make a 0.2% to 1.4% methyl arsinic acid zinc solution were used in the experiment. Between 1975 and 1977, we used "male gametocide No 1" (containing 5% methyl arsinic acid zinc, 7.2% hydrochloric acid, average addition of 7.5%) to make a 0.15% to 0.025% methyl arsinic acid zinc solution for use in the experiments.

3. In conducting the experiments, either a barrel type or a backpack type hand cranked sprayer was used according to each of the eight different stages of growth of the young panicles of paddy rice. The amount of solution used generally was about 10 milliliters per plant. Three days after treating the plant, samples were taken, planted in pots and quarantined. The percentage of unfilled grains was statistically recorded to observe the effect of the male gametocide.

4. Respiratory strength of the anther (including the filamets) was measured by a capillary microrespiratory meter. The enzymic activity and the content of the pollen were examined and determined by microscopic chemical methods (using I-KI reagent to determine the starch content, hydro-indene triketone reaction and ferric ferrocyanide reaction to determine the protein content, 2,3,5-chloro-tribenzo-tetranitrazole reagent to determine the activity of dehydrogenase of the succinic acid, and α-naphthol-trans amino dimethyl amino-benzene reagent to determine the activity of the oxidase of the pigment of the cells.) The method of microscopic chemistry of paper layer analysis was used to determine free amino acids. The method of trace titration was used to determine compounds of hydrosulfide groups (HS-)(6) (Use 60 anthers to make 5 milliliters of liquid substance, filter and take one milliliter of filtered liquid and titrate with KIO_3. All samples were taken during peak flowering period for analysis.

5. Beginning from the third day after spraying the solution to the time of flowering, samples of rice panicles were taken every other day between 7 and 9 am. These were fixed in Carnoy's fluid for 24 hours and then stored in 70% alcohol. Glass slides were used to observe the development of pollen. Staining was done by a 1% solution of acetic carmine or 1% acetic acid carmine plus 4% acetic acid caesalpinia sappan.

6. ^{74}As was used to synthesize $CH_3{}^{74}AsO_3Zn \cdot H_2O$. Two batches were used. In 1975, the radioactivity ratio of the two batches was 1.58 and 0.60 microcurie/milligram respectively and the radioactivity ratio of the two batches used in 1976 was 2.51 and 1.30 microcurie/milligram respectively. They were used in "male gametocide No 1" and sprayed from a small sprayer on the plants at +5 and +8 centimeters from the leaf base. After sampling and preparing the specimen, a ECKO N53 OF model automatic scaler with millionth place carrying capability and a J140 model foil mica window (1.5 - 2.0 milligram/cm^2) cup shaped cover type counting tube were used to take measurements. Radioactive self exposed photographs were also taken.

Results and Analysis

1. Effectiveness of the "gametocide No 1"

Analysis of the massive amount of data gathered in the fields show that spraying "methyl arsinic acid zinc" during the various stages of growth of paddy rice between young panicle differentiation and the filling stage of the pollen content was more effective. More remarkable effect was achieved (Table 1) when sprayed during the period between meiosis of the pollen mother cells and the filling stage of the pollen content (mainly during the stage in which the mononuclei are at the poles, same in the following). The unfilled percentage could reach 99% to 100%. Under the same concentration and amount, the earlier the plants were sprayed, the greater the effect upon the growth and development and flowering habits of the plants (Tables 2, 3). Obviously, spraying the plants during the period of meiosis of the pollen mother cells and the filling period of pollen content has the least effect upon the growth and development and flowering habits of the plants. If the concentration used is not larger than 0.6%, the fruiting capability of the pistil remains normal (Table 4). Treating ordinary paddy rice varieties once during an appropriate period of growth with a concentration of less than 0.4% of "methyl arsinic acid zinc" can be 95% to 100% effective. If the concentration or the amount is increased and the number of sprayings is increased, the plants will be harmed by the chemical and the plants will visibly become dwarfed, the fruiting percentage will drastically drop and folding of the neck will become more serious.

Table 1 The Effect of "Methyl Arsinic Acid Zinc" Upon Paddy Rice At Different Periods

6)品种 7)处理 1)时期	8)秋二早二号选			9)广陆矮4号			10)西南矮		
	11)浓度(%)	12)药量(毫升)	13)套袋不实率(%)	浓度(%)	药量(毫升)	套袋不实率(%)	浓度(%)	药量(毫升)	套袋不实率(%)
2) 雌雄蕊形成期	0.24	5	90.8	0.8	6	—	0.4	10	100
3) 花粉母细胞形成期	0.24	5	96.2	0.8	6	90.9	0.4	10	100
4) 减数分裂期	0.24	5	99.7	0.8	6	99.8	0.4	10	99.6
5) 花粉内容物充实期	0.24	5	99.2	0.8	6	99.4	0.4	10	99.4

*Time of experiment was 1971 winter crop, 1972 late crop, 1973 late crop.

Key:
1. Period
2. Formation of pistil and stamen
3. Formation of pollen mother cell
4. Meiosis
5. Filling of pollen content
6. Varieties
7. Treatment
8. Qiu 2 zao 2 select
9. Guang lu ai No 4
10. Xi nan ai
11. Concentration (%)
12. Amount (milliliter)
13. Bagged unfilled percentage (%)

Table 2 The Effect of a 0.4% Concentration of "Methyl Arsinic Acid Zinc" Upon Paddy Rice Plants (Variety: xi nan ai 1973 late crop)

1)处 理 时 期	株高 8) (厘米)	剑叶长 9) (厘米)	穗长 10) (厘米)	颖花数 11) (朵)	12 颖花(毫米)		15 花药(毫米)		黄熟期 16) 绿叶数
					13 长	14 宽	长	宽	
2) 二次枝梗形成期1)	67.8	15.1	16.4	21	6.1	2.1	1.6	0.3	1
3) 雌雄蕊形成期	87.9	25.8	16.5	57	6.6	2.7	1.9	0.3	2
4) 花粉母细胞形成期	88.9	25.5	16.2	62	6.8	2.8	2.0	0.3	3
5) 减数分裂期	90.0	24.1	17.2	63	6.8	2.8	2.1	0.4	3
6) 花粉内容物充实期	95.8	27.2	18.8	67	7.2	2.9	2.5	0.4	3
7) 对照(无处理)	101.2	28.2	19.1	75	7.3	2.9	2.5	0.4	3

1) This is the period of differentiation of the second branch stem primordium and the primoridia of the spikelets. Same in the following.

Key:
1. Treatment period
2. Second branch stem formation period 1)
3. Formation of pistil and stamen
4. Formation of pollen mother cell
5. Meiosis
6. Filling of pollen content
7. Contrast (not treated)
8. Plant height (cm)
9. Length of boot leaf (cm)
10. Length of panicle (cm)
11. Number of spikelets (flower)
12. Spikelet (milliliter
13. Length
14. Width
15. Anther (milliliter)
16. Number of green leaves during yellow ripe stage

Table 3 The Effect of a 0.4% Concentration of "Methyl Arsinic Acid Zinc" Upon the Flowering Habbit of Paddy Rice (Variety: xi nan ai 1973 late crop)

1) 处理时期	6) 日开花数/开花总数(%)					12) 时开花数/日开花总数(%)					
	第一日 7	第二日 8	第三日 9	第四日 10	第五日 11	九时 13	十时 14	十一时 15	十二时 16	十三时 17	其它时间 18
2) 花粉母细胞形成期	6.5	11.5	19.0	63.0	0	6.8	20.3	21.7	25.7	12.2	13.3
3) 减数分裂期	16.9	39.0	28.8	15.3	0	1.0	0	57.5	36.0	5.5	0
4) 花粉内容物充实期	12.1	30.3	29.1	28.5	0	4.1	1.2	15.6	45.3	29.2	4.6
5) 对照（无处理）	18.8	33.7	29.0	18.5	0	4.0	1.1	37.7	47.6	9.2	0.4

Key:

1. Treatment period
2. Formation of pollen mother cell
3. Meiosis
4. Filling period of pollen content
5. Contrast (not treated)
6. Number of daytime flowerings vs total number of flowerings (%)
7. 1st
8. 2nd
9. 3rd
10. 4th
11. 5th day
12. Number of hourly flowerings vs total number of daytime flowerings (%)
13. 9 am
14. 10 am
15. 11 am
16. 12 pm
17. 13 pm
18. Other hours

Table 4 The Effect of Different Concentrations of "Methyl Arsinic Acid Zinc" Upon the Activity of the Pistil of Paddy Rice (Variety zhen zhu ai 1973 early crop)

1) 处理浓度 (%)	不实率 3) (%)	4) 自然授粉结实情况									
		5) 重复 I				10) 重复 II				平均结实率 (%) 11)	与对照比较 (%) 12)
		穗 6) 数	7) 开花数 (朵)	8) 结实数 (朵)	9) 结实率 (%)	穗数	开花数 (朵)	结实数 (朵)	结实率 (%)		
0.6	99.9	5	37	31	83.8	7	48	33	68.8	76.3	107.9
1.0	100	9	54	30	55.6	9	101	74	73.3	64.5	91.2
1.4	100	9	68	26	38.2	8	34	10	29.4	33.8	47.8
2) 对照 (温汤杀雄)	—	7	194	117	60.3	5	63	51	81.0	70.7	100

Key:
1. Concentration (%)
2. Contrast (warm water treatment to kill male gametocytes)
3. Unfilled percentage (%)
4. Natural Pollination and Fruiting
5. Repart I Number
6. of panicles
7. Number of flowerings (flower)
8. Fruiting number (flower)
9. Fruiting percentage (%)
10. Repeat II
11. Average fruiting percentage (%)
12. Contrast with untreated (%)

The use of "male gametocide No 1" with methyl arsinic acid zinc as an ingredient makes it possible to lower the effective concentration of paddy rice gametocide. In treating ordinary varieties, the best effect is obtained when a concentration of between 0.015% and 0.024% of "male gametocide No 1" is sprayed during the filling period of pollen content (when 60% of the leaf bases of plants in the colony in the field are at +5 centimeters) with an appropriate amount (covering the surface of the leaves with fine misty spots). The percentage of unfilled grains will reach above 99% (Table 5).

Table 5 Effect of "Gametocide No 1" (1976)

1) 品种	处理浓度 2)(%)	调查穗数 3)	总粒数 (粒/穗) 4)	空粒数 (粒/穗) 5)	不实率 6)(%)	闭颖数 (粒/穗) 7)	闭颖率 8)(%)	包颈粒数 (粒/穗) 9)	包颈率 10)(%)	试验时间 11)
14) 珍珠矮	0.02	15	98.8	98.8	100	20.1	20.4	5.8	5.8	早造 12)
15) 南早 33	0.02	48	92.5	92.5	100	12.6	13.6	3.3	3.5	
16) 科 24	0.02	21	55.4	54.0	99.3	8.3	15.3	5.2	9.6	
17) 黎明(籼)	0.02	21	79.5	79.5	100	8.0	10.1	8.2	13.3	晚造 13)
18) 窄叶青	0.015	35	63.5	63.2	99.5	4.7	7.4	13.4	21.2	
19) 小家伙	0.02	16	60.4	59.4	99.0	17.4	28.8	14.1	23.3	
20) 苍丰矮	0.02	64	80.0	80.0	100	16.0	19.3	12.0	14.5	
21) 科 661	0.025	18	75.9	75.9	100	9.3	12.3	8.1	11.5	
22) 钢枝占	0.02	65	86.1	85.5	99.3	10.7	12.4	7.8	9.1	

Key:
1. Variety
2. Concentration (%)
3. Number of panicles surveyed
4. Total number of grains (grain/panicle)
5. Number of empty grains (grain/panicle)
6. Unfilled percentage (%)
7. Number of spikelet closings (grain/panicle)
8. Percentage of spikelet closings (%)
9. Number of grains of golding neck (grain/panicle)
10. Percentage of folding neck (%)
11. Time of Experiment
12. early crop
13. late crop
14. zhen zhu ai
15. nan zao 33
16. ke 24
17. li ming (xian)
18. zhai ye qing
19. xiao jia huo
20. cang feng ai
21. ke 661
22. gang zhi zhan

2. Principle of "male gametocide No 1"

After spraying "male gametocide No 1", the paddy rice absorbs $CH_3AsO_3H_2$ through the roots, stem and leaves and transports it to the various other organs (Figure 1) [not reproduced] and finally to the panicles where the accumulation is between 2.22% and 7.81% the amount of all organs above ground. When a concentration of 0.02% of "male gametocide No 1" is sprayed on the plants during the single nucleus stage, the chemical is rapidly transported throughout the body of the plant after $CH_3{}^{74}AsO_3H_2$

is absorbed by the layer of leaves and half an hour after spraying the chemical reaches the panicles and the amount accumulated is 0.001% the total amount sprayed. As time goes on, the amount transported to and accumulated in the panicles increases (Table 6). Production practices prove that after ordinary varieties are sprayed, only 6 hours are needed for absorption and after 5 days the gametocide effect will be complete but there are differences among different varieties. Experimental results of artificial rain conditions show "zheng zhu ai" needs only 3 hours and "ke 661" needs only 4 hours for absorption and after 5 days the unfilled percentage both reach above 99%.

Table 6 Rapidity of Absorption and Transportation of $CH_3{}^{74}AsO_3H_2$ by the Paddy Rice Plant to the Panicles

1) 测定时间间隔（小时）	1/2	1	2	3	4	5	6
2) 放射性强度（计数/分）	98	158	169	276	480	789	965
3) 占总喷药量的相对百分比(%)	0.001	0.0017	0.0018	0.0028	0.005	0.008	0.01

Key:
1. Interval of measuring time (hours)
2. Intensity of Radioactivity (count/minute)
3. Percentage of the total amount of chemical sprayed (%)

When $CH_3{}^{74}AsO_3H_2$ enters the spikelets, its accumulation and distribution in each constituent part of the spikelet is uneven. The differences in distribution of the chemical can also be clearly seen from the radioactive self exposed photographs (Photographic plate I, 1). Comparison of the intensities of radioactivity shows a ratio among the pistil: stamen: flesh to be 2:1:1. The amount of chemical in the stamen is about half that in the pistil but good effects have been produced. Five to 6 days after spraying, unusual reactions can be observed in the course of development of the microspores.

After paddy rice is sprayed with the gametocide, the content of hydrosulfide group compounds (HS-) in the anther visibly decreases (Figure 2), activity of succinic acid dehydrogenase and oxidase of cell pigment visibly reduces (Table 7), and thus respiratory intensity drops to 1/2 to 1/3 that of the controlled samples (Table 8). This is due on the one hand to the visible reduction in size of the anther and at the same time due to the suppression of respiratory metabolism of the anther. This necessarily leads to a destruction of the normal respiratory metabolism of the anther, hindering energy metabolism. Not only is the formation and the accumulation of the pollen content affected but the normal development of the pollen is also seriously interrupted. Experimental results show the earlier the plants are sprayed the greater the effects upon them.

(1) When the plants are sprayed during the period between the formation of the second branch stem and the formation of the pollen mother cell, the succinic acid dehydrogenase and oxidase of cell pigment are visibly suppressed (Table 7). There is no starch and protein (Table 9), the amount of free amino acid visibly drops, cells of the layer of down decomposes abnormally, different degrees of adhesion of the pollen mother cells occur (Photographic plate I, 4) at the same time abnormal meiosis and chromosome activity occur, and since the nucleoplasm splits incoordinately, deformed pollen grains occur (Photographic plate 1,2,3,5,6). Abortion of the anther always occurs during the single nucleus state (Photographic plate I, 7).

(2) When the plants are sprayed during the period between the meiosis of the pollen mother cells and the single nucleus stage, the succinic acid dehydrogenase and the oxidase of the cell pigment during the beginning flowering period do not show any change but after the peak flowering period, they become visibly suppressed, especially the suppression of the succinic acid dehydrogenase is more visible. Content of the pollen becomes normal. Free amino acid's content of proline visibly drops, the content of tryptophase also reduces while the contents of alanine and asparagine increase (Table 10). The normal mitosis of the pollen is hindered. When the chemical was sprayed during the meiosis period, the pollen during the single nucleus state and the binuclear state undergo cytoplasm decomposition or decomposition of the cell nucleus or cytoplasmic wall separates, (Photographic plate I, 8) leading to abortion. When sprayed during the single nuclear stage, pollen cannot germinate or elongation of the pollen tube is hindered, and even deformity and splitting occur (Photographic plate I, 9-13). Fertilization cannot be completed and this leads to abortion.

Discussion

1. Within a certain concentration of "methyl arsinic acid zinc", spraying the paddy rice plants during an appropriately selected period can achieve the goal of inducing male sterility and also retain in principle normal growth of the pistil. This fully indicates it is a chemical that possesses a better effect upon paddy rice. Concentration of methyl arsinic acid zinc used on ordinary varieties of paddy rice as a gametocide should be as high as 0.4% but when made into "male gametocide No 1", the concentration can be lowered from the original 0.4% to 0.02%. In the "male Gametocide No 1" solution methyl arsinic acid zinc dissociates into $CH_3AsO_3H_2$. Our experiments show all chemicals containing $CH_3AsO_3^{=}$ (such as methyl arsinic acid calcium, methyl arsinic acid iron ammonium) used on paddy rice plants yielded a better result as gametocides and therefore we believe the ingredient that induces male sterility in paddy rice is $CH_3AsO_3H_2$.

2. The effect of "male gametocide No 1" is relatively stable. Physiological, biochemical morphological disection and isotope tracing studies indicate that when the chemical is sprayed during the pollen mother cell meiosis and the filling stage of pollen content, the effect upon the plant's growth and development is relatively small. The ratio of radioactivity in each pistil, stamen and flesh is approximately 2:1:1. Repeated experiments must be conducted to assure thorough effectiveness and most appropriate treatment of different paddy rice varieties, maintain activity of the pistil and avoid over accumulation of the chemical in the flesh which will lead to serious closing of the spikelets. The most appropriate time for treatment and the most appropriate concentration must be determined. Only in this way can the yield of seed propagation of hybrid varieties be effectively raised. As to the question concerning whether the absorption distribution ratio in the pistil, stamen and flesh mentioned above is a general pattern, the cause of the larger accumulation of the distribution in the pistil and stronger tolerance of the pistil, the mechanism that leads to increased closing of spikelets and the ways in which $CH_3AsO_3H_2$ acts inside the body of the plant still need to be studied more profoundly.

3. Reports (3,7,9,11,14) indicate percolates of dichloro proprionic acid, ethyl methane sulphonic acid, Citcuta visosa and Arisaema japonicum can cause abnormality in meiosis of pollen mother cells and in the development of microspores in some plants leading to abortion. Of special interest is that under anaerobic conditions, meiosis of the pollen mother cell is abnormal. This indicates that meiosis is closely related to aerobic respiration. The developing anther contains hydrosulfide group compounds. The methyl arsinic acid in the "male gametocide No 1" may have been reduced to a trivalent arsinic compound within the body of the paddy rice plant thus suppressing the activity of the enzyme of the hydrosulfide group and at the same time functions as a respiratory suppressor and a decoupling agent of oxidation and phosphatization, destroying normal respiration of the pollen mother cell and microspores and energy metabolism and thus achieving the purpose of gametocide.

According to reports (4,9) the pollen of paddy rice and other crops contain succinic acid dehydrogenase and oxidase of cell pigment. In the pollen of male sterile plants, the activity of the two enzymes above is greatly reduced and is weaker than the enzymes in the pollen of normal plants. We have discovered in our experiments that the two kinds of enzymes mentioned above are also inactive in the sterile pollen induced in the paddy rice plants by "male gametocide No 1". To prove whether "male gametocide No 1" does or does not suppress hydrosulfide group (HS-) enzymes, we conducted the following preliminary experiment: Pollen of normal paddy rice plants was treated with saturated water solution of methyl arsinic acid zinc. After 30 to 60 minutes, the content was washed with distilled water. We treated another handful of pollen with distilled water only for the same duration as contrast. Then we measured the activity of the oxidase of the cell pigment and the succinic acid dehydrogenase of the pollen. The results show: methyl arsinic acid zinc can suppress succinic acid dehydrogenase in the pollen.

4. Amino acid is the constituent part of protein. Some free amino acids in the body of plants are significant physiologically and biochemically. According to reports (5), in a normal anther proline constitutes between 40% and 50% of the total amount of amino acids and is closely related to the development, germination and elongation of the pollen tube of pollen. In various male sterile plants, the content of proline in the anther is visibly reduced, such as in male sterile wheat, corn and beets.(10,13,15) According to studies, (4), in the free amino acid of the anther of the wheat plant during the degenerate stage, there is an accumulation of asparagine in the anther of the sterile flower. These results conform to the results we obtained in the analysis of inducing male sterility in paddy rice by the "male gametocide No 1". Tryptophase is the precursor of the growth substance indole acetic acid. It can also change directly into nicotinic acid mononuclear glycoside which is also needed by normal pollen. After treating with "male gametocide No 1", the various amino acids lessen, disappear or increase, indicating a hindrance to the protein metabolism in the anther similar to the change in the sterile line of the undomesticated abortive type. This indicates that abortion of the pollen in the two cases cited may be due to a common physiological and biochemical process. Further studies are needed in this regard.

In the course of development of the pollen, cell division, cell fusion, and accumulation of many kinds of organic matter such as starch, protein and nucleic acid all require spending of energy. The energy needed is provided by respiratory metabolism, thus the anther that is developing normally has a very intense respiratory activity. If the normal respiratory metabolism of the anther is interrupted, the normal development and filling of the content of the pollen would also be hindered. According to reports, after paddy rice was treated by low temperatures to kill male gametocytes,(5) the respiratory activity and the content of protein in the anther drastically dropped. We used "male gametocide No 1" and obtained the same results.

Since the use of "male gametocide No 1" to treat paddy rice leads to the series of physiological and biochemical changes of a reduction in the amount of hydrosulfide compounds in the anther, loss of activity of the succinic acid dehydrogenase and the oxidase of the cell pigment, suppression of oxidation and phosphatization, and hindrance to protein metabolism, the normal development of the anther is necessarily hindered. Therefore we believe "male gametocide No 1" is effective because it destroys the normal respiratory metabolism of the male organs of paddy rice.

5. The question of residual amounts of "male gametocide No 1" in paddy rice grains for food has always been our concern and worry. Actually, arxinic compounds are distributed in various degrees in the soil and the paddy rice plant can absorb and accumulate such compunds via the root system. Therefore the content of As_2O_3 in the rice grain is generally between 0.2 to 0.5 milligram/kilogram. The standard amount of arsinic compounds allowed to remain in foodstuffs by each nation is different.

A majority of nations generally allow the content in various different crops to be between 1 and 3 milligram/kilogram. We used the "male gametocide No 1" to produce a hybrid paddy rice variety and transplanted it. The grains produced by the first hybrid generation was harvested (for food or for seed) and compared with the grains produced in the large fields. Their content of As_2O_3 was the same. After many years of testing by the Guangdong Provincial Testing, Experimentation and Analysis Institute, the content remained between 0.214 and 0.406 milligram/kilogram, considered to be within the range of safety. The content of As_2O_3 in the grains harvested from the second generation hybrids produced by the seeds of the first generation hybrids should be insignificant. The results of analysis indicate the content of As_2O_3 is still equivalent to that in the grains produced by the large fields. It is obvious that this is related to the arsinic compounds absorbed from the soil by the plants.

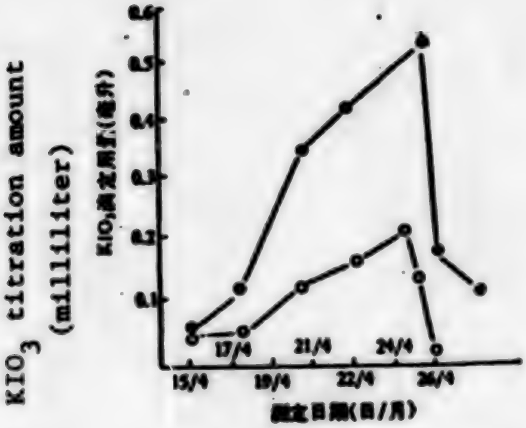

Diagram 2 Changes in the content of free hydrosulfide group (HS-) compounds in the course of maturation of the paddy rice anther (Variety: Guang lu ai No 4, treatment time: meiosis of pollen mother cell)
o - o treated ● - ● contrast

Table 7 Effect* of spraying "Gametocide No 1" upon activity of succinic acid dehydrogenase and oxidase of cell pigment

1) 取样时期	6) 酶	11) 喷药时期					对照 (不喷药) 17)
		二次枝梗形成期 12)	雌雄蕊形成期 13)	花粉母细胞形成期 14)	减数分裂期 15)	单核期 16)	
2) 始花期	7 琥珀酸脱氢酶	−		−	++	+++	+++
	细胞色素氧化酶	−	−	−	++	+++	+++
3) 盛花期	8 琥珀酸脱氢酶	−	−	−	−	−	+++
	细胞色素氧化酶	−	−	−	−	++	+++
4) 开花后期	9 琥珀酸脱氢酶	−	−	−	−	−	+++
	细胞色素氧化酶	−	−*	−	−	−	+++
5) 开花末期	10 琥珀酸脱氢酶	−	−	−	−	−	+++
	细胞色素氧化酶	+	+	+	++	++	+++

*"-" indicates all pollen show a negative reaction or only a few individual pollen show a positive reaction; "+" indicates a few (under 30%) pollen show positive reaction; "++" indicates more (about 30% - 90%) pollen show positive reaction; "+++" indicates all pollen show positive reaction or only a few individual pollen show negative reaction.

Key:

1. Sampling time
2. Beginning period of flowering
3. Peak flowering period
4. Latter period of flowering
5. Ending period of flowering
6. Enzyme
7. succinic acid dehydrogenase
   oxidase of cell pigment
8. succinic acid dehydrogenase
   oxidase of cell pigment
9. succinic acid dehydrogenase
   oxidase of cell pigment
10. succinic acid dehydrogenase
    oxidase of cell pigment
11. Period of Spraying
12. Second branch stem forming period
13. Stamen and pistil forming period
14. Pollen mother cell forming period
15. Meiosis period
16. Single nuclear stage
17. Contrast (not sprayed)

Table 8 Effect* of Spraying "Gametocide No 1" Upon Respiratory Intensity of the Paddy Rice Anther

1) 测定日期	2) 二枝梗形成期施药	3) 雌雄蕊形成期施药	4) 对照（不施药）
5) 10月6日	13.6	17.1	40.3
9日	3.8	15.2	30.9
10日	9.3	17.0	32.2
11日	7.5	13.5	25.7
12日	10.9	14.5	26.4
6) 平均	9.0	15.5	31.1

* The amount of oxigen intake in microliters in one hour by 60 anthers

Key:
1. Date of measurement
2. Spraying during formation of second branch stem
3. Spraying during formation of pistil and stamen
4. Contrast (not sprayed)
5. October 6
   9
   10
   11
   12
6. average

Table 9 The Effect of "Gametocide No 1" Upon the Content of the Mature Anther of Paddy Rice

1) 喷药时期	2) 淀粉 I-KI 反应	3) 蛋白质	
		4) 水合茚三酮反应	5) 亚铁氰化铁反应
6) 二枝梗形成期	-	-	-
7) 雌雄蕊形成期	-	-	-
8) 花粉母细胞形成期	-	-	-
9) 花粉母细胞减数分裂期	++	++	++
10) 花粉内容物充实期	+++	+++	+++
11) 对照	+++	+++	+++

Key:
1. Spraying period
2. Reaction of starch to I-KI
3. Protein Reactions
4. Hydro triketone indene
5. Ferric ferrocyanide
6. Formation of second branch stem
7. Formation of pistil and stamen
8. Formation of pollen mother cell
9. Meiosis of pollen mother cell
10. Filling period of content of anther
11. Contrast

Table 10 Changes* of free amino acids in the paddy rice anther after treating with "Gametocide № 1" (Variety: guang lu ai No 4)

1) 喷药时期	2)单核期			3)双核期			4)三核期			
	脯氨酸 9)	色氨酸 10)	丙氨酸 11)	脯氨酸	色氨酸	丙氨酸	脯氨酸	色氨酸	丙氨酸	天门冬酰胺 12
5)雌雄蕊形成期	−	−	+	−	+	++	+	+	+	微量13
6)花粉母细胞形成期	+	++	++	+	+	++	++	++	−	微量
7)花粉母细胞减数分裂期	−	+	+++	−	+	++	+	+	+++	++
8) 对照	+++	+++	+++	+++	++	+++	+++	++	+	+

* "+" indicates few; "++" indicates medium; "+++" indicates plenty; "-" indicates none.

Key:
1. Spraying period
2. mononuclear stage
3. Binuclear stage
4. Trinuclear stage
5. Formation of pistil and stamen
6. Formation of pollen mother cell
7. Meiosis of pollen mother cell
8. Contrast
9. proline
10. tryptophane
11. alanine
12. asparagine
13. trace amount

9296
CSO: 8111/0337

'BEIJING RADIO' ON STRENGTHENED FIELD MANAGEMENT

OW101110 Beijing Domestic Service in Mandarin 1200 GMT 8 Dec 79 OW

[Station editorial department commentary: "Pay Close Attention to Field Management; Pave the Way for Winning a Rich Summer Harvest of Grain and Oilbearing Crops"]

[Text] With the completion of fall and winter planting, field management has spread to most of the localities in the country. This [illegible]r, as a result of conscientious implementation of the two Central Committe[illegible]ocuments on agriculture production and the party's rural policies, the broad masses of cadres and people are full of vigor and have overcome various disadvantageous factors encountered during sowing and planting, and they have duly completed their fall and winter planting tasks. In general, the quality of sowing work is good.

However, in certain localities the soil's moisture is far from sufficient due to the dry weather that prevailed during sowing. In certain other localities, land leveling and sowing were roughly done due to continuous rain. This has resulted in weak, unhealthy and insufficient wheat and rape seedlings.

At present, drought is continuing in the reaches of the Huanghe and Huaihe rivers as well as in the Changjiang River basin. According to weather forecasts, there will not be enough rain and snow and the temperature will further drop in the winter. Drought and low temperature will constitute a serious threat to young seedlings which must survive the winter.

Knowing little of the unsatisfactory seedling growing conditions, certain comrades are unrealistically optimistic. Content with the rich harvests of summer grain and oilbearing crops gathered for the past 2 consecutive years, they consider winning a bumper harvest next year as a very easy job. For these reasons, field management in their localities has started late and progressed slowly. Certain other localities have failed to carry out the related policies after winning rich harvests, thereby dampening the masses' enthusiasm in properly tending the overwintering crops.

To step up tending of overwintering crops, leaders at all levels should overcome unrealistic optimism and effectively implement the related policies so as to win people's confidence. Meanwhile, they should make proper arrangements for the labor force needed and, in the light of the actual conditions in various localities, establish professional crop tending teams for wheat and rape, perfect the system of responsibility in production and divert the masses' work enthusiasm to field management.

Summer grain and oilbearing crops play a very important role in agricultural production for the whole year, experience in past years tells us that whether wheat and rape seedlings can grow healthily in winter has a significant bearing on next year's bumper harvest. In view of the above, all localities must lose no time in strengthening field management, see to it that the seedlings of overwintering crops grow healthily and in full stand and with increased cold resistance to survive the winter, and lay a sound foundation for winning a bumper harvest next summer.

CSO: 4007

PRC HOLDS NATIONAL CONFERENCE ON SILKWORM COCOON PRODUCTION

OW121330 Beijing XINHUA in English 1241 GMT 12 Dec 79 OW

[Text] Beijing, 12 Dec (XINHUA)--China's output of mulberry silkworm cocoons reached a record 210,000 tons this year. The output was 35,000 tons more than in 1978, the biggest annual increase since the founding of the People's Republic in 1949.

The figure was announced at a national conference on the production of silkworm cocoons just closed in Beijing. Output of Tussah silkworm cocoons in 1979 was also somewhat greater than in the preceding year, although the major Tussah silk producing areas in Northern China were menaced by drought, the conference noted.

The conference was jointly called by the ministry of agriculture, the ministry of foreign trade, the ministry of textile industry and the All-China Federation of Supply and Marketing Cooperatives with a view to speeding up the expansion of China's silk industry. Representatives from 26 provinces, municipalities and autonomous regions attended.

Good harvests of silkworm cocoons have been gathered in China for three years in succession thanks to efforts made to build up a diversified rural economy, according to speakers at the conference, and China's silk output reached a new high this year. China now ranks first in the world in raw silk output, and raw silk and silk textiles have become one of its major export items, next only to petroleum in export value.

Several speakers pointed out that there was a great potential for further development of the silk industry in China. The conference decided to boost the development of cocoon production in those counties that already produce more than 500 tons a year. More than 100 counties have reached this level and efforts will be made to increase the output of another 30 counties to the same level in two to three years.

The conference called attention to Sichuan Province in Southwest China where cocoon output rose particularly fast for three years running, from 43,000 tons in 1977 to 51,500 tons in 1978, and 70,000 tons this year. The province now accounts for one third of the country's annual silkworm cocoon output. Zhejiang and Jiangsu Province also made rapid progress.

The conference decided to boost sericulture along these lines: expand production in the traditional raising areas and build up new raising areas; pay attention both to mulberry and Tussah silk production; expand collective silkworm raising and allow peasant families to breed silkworms as their domestic sidelines; strengthen scientific research and improve management techniques.

Silkworm raising has brought added income to the communes and peasants, according to the conference. In many major producing counties, silkworm cocoons account for over 20 per cent of the annual agricultural income.

CSO: 4020

JAPANESE EXPERTS ACHIEVE HIGH RICE YIELD IN JILIN

OW081222 Beijing XINHUA in English 1213 GMT 8 Dec 79 OW

[Text] Changchun, 8 Dec (XINHUA)—Ten hectares of rice fields cultivated by Japanese experts who were invited to pass on their experience in Jilin Province in Northeast China yielded an average of eight tons per hectare this year. The highest plot yield was almost 9.4 tons, twice that in nearby communes and brigades.

The seven-member group of Japanese experts headed by Minoru Tanaka was sent to undertake the experiments by the Japan-China agricultural and peasant exchange association at the invitation of the Chinese Society of Agronomy. Thirty Chinese technicians joined them to work on the experiments. China provided funds for the machines, seed, fertilizer and pesticides from Japan.

Besides being mechanized, cultivation of the rice was marked by three features:

—High-yield strains were used which resist disease and lodging.

—While little attention was paid to the application of base fertilizer, much more was paid to the application of fertilizer in the late period of rice growing so as to achieve large ears and full kernels. This is contrary to normal practice in China.

—Rice seedlings were bred [sic] in cold frames and transplanting began on May 10, 20 days earlier than normally undertaken by local peasants. In this way, rice output was not affected by frosts in the autumn. Between 225,000 and 300,000 clusters of rice seedlings per hectare were planted, which is sparser than in many parts of China.

Rice cultivation using the Japanese techniques took an average of 600 work-hours per hectares, 75 per cent less than normally locally.

CSO: 4020

PRC USES NEW METHODS TO SAVE SALINE FARMLAND

OW101216 Beijing XINHUA in English 1200 GMT 10 Dec 79 OW

[Text] Shijiazhuang, 10 Dec (XINHUA)—Methods which have been developed and used successfully by scientists to transform 400 hectares of low-yielding saline farmland in Hebei Province have provided valuable experience for dealing with similar problems over more than three million hectares in the Haihe, Yellow and Huai river basins.

The work has been done by a group researching ways of improving saline soil organized by teachers of Beijing Agricultural University. They worked from 1973 to 1978 in an experimental area in six production brigades of two people's communes in Quzhou County in the Haihe River basin. The experimental area chosen is one of the worst afflicted in the Haihe River basin and in addition to soil salinity is vulnerable to both waterlogging and drought. The scientists were commended for their success at the national science conference held last year.

The methods already tested are now being applied on 15,000 hectares of saline land in Quzhou Country.

The cause of the area's poverty was the Haihe Riber's disastrous flooding which resulted in the disruption of drainage systems, salinization of the soil and chronic waterlogging alternating with drought in the dry seasons. The harnessing of the Haihe River undertaken since liberation has greatly alleviated flood menace, waterlogging and drought and fair crops are now ensured in years of normal weather. The present project is part of the work being done to further improve farming conditions and raise crop yields in the river basin.

The methods applied by the scientists include building a network of ditches and pumps wells that service all farmland in the experimental area. Surface runoff accumulated on farmland after heavy rainfall, together with the alkali salts washed from the soil, are sent off through the deep ditches. The wells, in addition to supplying irrigation water for flushing the soil, help to dilute saline underground water since they are replenished from time to time with rain water with a low saline content. Soil improvement is combined with tree planting and other measures.

In Changzhuang brigade, a centre of experiment where per-hectare grain yield used to be only two tons, the yield went up to 6 tons in 1977 and 7.6 tons in 1978 (calculated in terms of two crops a year). The brigade, which formerly had to ship in 20 to 50 tons of food grain a year, delivered and sold to the government 250 tons of surplus in 1978.

Soil salinity was before so serious that some land, covered by a thick layer of incrustation of alkali salts, lay completely barren, and nearby villagers used to extract salts from there for income. Now even parts of this land have been turned to arable land.

The following successful results have also been recorded:

In July 1976, 283 millimetres of rain fell in three days, the surplus rain water was promptly drained off while nearby areas were swamped.

In 1978, only 30 millimetres of rain fell during the whole period of wheat growing and the area was threatened by drought. Ample water was supplied by pump wells and irrigation ditches, and wheat yield in the experimental, area averaged 3.7 tons per hectare.

While 83 per cent of the farmland was too saline for crops before, the proportion has now dropped to around 20 per cent.

A plan mapped out to apply the scientists methods to 15,000 hectares is being implemented. The Zhangho River that stretches across the area is being dredged, 50 main drainage ditches and large and small lateral ditches involving a total of over four million cubic metres of eath work are being excavated, and wells sunk. Reeds, clover, ambary hemp and other alkali-resistant plants will be grown on part of the land.

Construction, being undertaken by local communes and production brigades, is now in full swing in the present slack farming season. Dredging of the Zhangho River is almost complete and most of the main drainage ditches are finished.

CSO: 4020

ECONOMIC JOURNAL DISCUSSES USE OF AGRICULTURAL MACHINERY

Beijing JINGJI GUANLI in Chinese No 8,25 Aug 79 pp 30-34 HK

[Article by Tan Jinwei [0968 8612 2091]: "Agricultural Machinery Should Be Employed in an Organized Fashion"]

[Text] Ever since 1976, our Guangdong Province has implemented the policy of organizing important agricultural machines, such as tractors, together. Under the principles of voluntary participation and mutual benefit and exchange of equal values, everything is centrally directed, utilized, maintained, supplied and accounted for by the production brigade. This is called centralized control by the brigade. By December 1977, 40 percent of the brigades in the province were under centralized control. It has been proven by practice that the employment of agricultural machinery in an organized fashion and centralized control by the brigade is the correct implementation of the Party's general line of socialist construction. This is a correct principle for the greater, faster, better and more economic development of agricultural production and for the construction of modernized socialist great agriculture. It expresses the aspirations of the popular masses of peasants and reflects the demand of the objective law for the relations of production to accord with the nature of productive forces. This article intends to explore the necessity and the question of popularization of centralized control by the brigade.

I. Centralized Control By the Brigade Is the Summing Up of the Practical Experiences of the Masses

Centralized control by the brigade is one form of agricultural machinery management. The study of the emergence of centralized control by the brigade should start from the history of the forms of agricultural machinery management. In retrospect, the history of the forms of agricultural machinery management can be roughly divided into three stages. The first stage spanned from the establishment of the first batch of state tractor stations in Zhongshan and Xuwen countries in 1954 to 1969. This was essentially a stage of state ownership and management. The second stage lasted from 1970 to October 1976. This was essentially a stage of management of large and medium-sized tractors by communes and production brigades while management of handguided tractors was by the production teams. From October 1976 onward, the whole province has been popularizing "the management form of centralized control of the utilization of agricultural machines such as tractors by the production brigade and the establishment of brigade agricultural machinery stations." From then on, the management of agricultural machinery has entered the stage of organized centralized control by the brigade.

The formation of the form of agricultural machinery management and the emergence of centralized control by the state is closely related to political and economic conditions, especially the development of the collective economy and mechanization of agriculture of the time. During the collectivization of agriculture, the Party central authorities had adopted a series of measures in support of the movement. The most important one among them was the "suggestion on the establishment of agricultural tractor stations" passed by the National Conference of Agricultural Work in October 1952. In 1953, Guangdong prepared to set up the first batch of state tractor stations in 1954 in accord with the principle of "trial operations at key points." State ownership and management was the principal form of agricultural machinery management at that time. This confirmed with the actual situations of the infancy of the agricultural collective economy and the scarcity of agricultural machines. With the development of the collective economy and the increasing supply of agricultural machines by the industrial sector, our Party adopted the policy of encouraging the purchase of agricultural machines by the collective economies of communes. This greatly mobilized the enthusiasms of the popular masses of peasants to use agricultural machines. The number of agricultural machines owned by collective economies increased by leaps and bounds. In 1976, the whole province owned 84,000 tractors of various sizes. This was an 18-fold increase as compared with 1965. Other types of agricultural machines increased by several, 10- and 100-fold respectively. Above 97 percent of the large- and medium-sized tractors and nearly all the handguided ones were collectively operated by the brigades.

Originally, there were three forms of collectively operated agricultural machines in Guangdong, that is, commune operated, brigade operated and production team operated. Roughly speaking, the large and medium-sized tractors were operated by the communes and the brigades, but were primarily operated by the brigade. The handguided tractors were operated by the brigades and the production teams, but were primarily operated by the production teams Management of agricultural machinery by the brigade had increased the pace of agricultural mechanization. However, this also gave rise to new problems, mainly expressed in prevalently poor efficiency and working conditions and high costs of production and waste in production team operated handguided tractors. In areas where there are more teams possessing tractors, the handguided one of the production teams "compete" with the large- and medium-sized ones of the brigades. This has resulted in incomplete utilization of large- and medium-sized tractors and overburdening of handguided tractors, which has seriously affected the quality of cultivation. Meanwhile, the less well-off production teams cannot afford to use agricultural machinery. Improving the management and utilization of agricultural machinery to yield the greatest efficiency is a pressing problem. This should be done by using fewer agricultural machines to achieve the greatest economic effects so as to increase agricultural output and help the poorer production teams take a turn for the better.

To resolve this contradiction, the various localities have carried out various types of tests and experiments. Production brigades having more teams possessing agricultural machinery, such as the Shang Yue brigade of Fogang County, Lian Jiao brigade of Nanhai County and Hushan brigade of Doumen County have organized together the handguided tractors operated by the production teams. These tractors are centrally directed, utilized, maintained, supplied, and accounted for by the brigade. This has achieved very good results. For instance, the Lian Jiao brigade of the Dali commune of Nanhai County has operated a medium-sized tractor while the production teams have run nine handguided tractors. All these tractors were centralized by the brigade in October 1975. As compared with 1975, the total volume of operation for 1976, after centralized control, had increased from 19,000 standard mu to 30,700 standard mu, an increase of 61.6 percent. The volume of operation for each horsepower had increased from 143 standard mu to 186 standard mu, an increase of 30 percent. The production cost (including expenses for maintenance, fuel and management) per standard mu had been reduced from 0.635 yuan to 0.342 yuan, a reduction of 46.1 percent. The oil consumption per standard mu dropped from 0.81 kg to 0.483 kg, a reduction of 40 percent. For the Hushan brigade of Wushan commune, Doumen County, there are 5 large- and medium-sized brigade-owned tractors, and 20 production team-owned handguided tractors. With the implementation of centralized control by the brigade in the spring of 1975, due to the coordination of tractors of various sizes, centralized arrangements and rational utilization, the large- and medium-sized tractors brought their effectiveness to the full while the handguided tractors improved their efficiency. When compared with the same period of the previous year, the volume of operation per unit of large and medium-sized tractor increased 21 percent while that of handguided tractors tripled.

The emergence and popularization of centralized control by the brigade were welcome by cadres and the masses. This well attested to its dynamic life.

II. Centralized Control By the Brigade Is the Form Best Suited to the Present Level of Productivity

The present form of centralized utilization and control of principal agricultural machinery in Guangdong Province are mainly of two types. The first is to carry out ownership by the production team and centralized utilization and control by the brigade. Each unit of machinery keeps its own account, with the team possessing the machinery shouldering the responsibilities for profits and losses. The second type is to convert all principal agricultural machinery such as handguided tractors originally owned by the production team into money and return the machinery to the brigade. The proceeds of such conversions would be centrally controlled by the brigade and reverted back to the production teams by installment. In this way the brigade owns, utilizes, controls and shoulders the responsibilities of profits and losses for the machinery. Neither of these two forms are just alternative management methods but an adjustment to the relations of production. For the first form, the ownership and rights of distribution of the income from the operation of the agricultural machinery remain unchanged. Such rights remain with the production team. Only the right of utilization and control of agricultural machinery has been adjusted. For the second form, the rights of ownership, utilization, control and distribution of income have been altered. Originally, the production team owned, utilized and shouldered the responsibilities for profit and loss; now the brigade owns, utilizes and shoulders the responsibilities for profits and losses. However, whether it is the first form or the second, the rights of utilization and control of agricultural machinery have been transferred from the production team to the brigade. This is a change from a lower stage of development of utilization and control to a higher one. The sphere of utilization and control of agricultural machinery has been enlarged. Although this kind of change is just confined to the right of utilization and control, it can only be realized when the development of the productive forces necessitates such a change. It cannot be carried out by the subjective will of men. This can be analyzed from three perspectives:

First, agricultural machinery such as tractors are a kind of advanced means of production. They are highly efficient and have a wide range of uses. Both in terms of time and space, there is a need to transcend the level of the production team in the utilization of these machines. The labor efficiency of tractors, even handguided ones that have a smaller horsepower, are several or tens of times higher than that of draft animals. In addition to the small scale of organization, a production team is very much restricted by conditions such as the varieties of crops, the relatively dispersed arrangement of crop varieties, scattered pieces of land and land enclosed by the land of another production team and so forth. This has made continuous plowing and the effective utilization of the cropping seasons very difficult. This in turn hinders the effective utilization of tractors. This contradiction can be effectively resolved by implementing centralized control by the brigade. This will expand the scope of tractor utilization from the level of production team to the level of production brigade. The workload of the production team, the schedule of operation and the actual conditions of the agricultural machinery can be centrally directed and rationally arranged within the brigade. The personnel, machines, areas of operation and tasks can be assigned by the brigade to carry out work continuously in different fields. This will bring the role of tractors into full play and raise the labor productivity of agriculture.

Secondly, the utilization of agricultural machinery requires a correspondingly scientific management which the production team is unable to provide. Management is the necessary condition of all socialized production. Marx said that all direct social labor or common labor in a greater scale more or less requires some form of direction. Here "direction" entails management. Under the condition of manual labor, "the plowing is done by the hoe and the speed depends on the worker." It is different for operation by machinery. The degree of socialization of production has been raised. Processes such as utilization, maintenance, supply and training are specialized. These processes coordinate and restrain each other. The various links are closely coordinated into an organic whole. The mismanagement of one link will obstruct or even break down the whole laboring process. The production team is unable to cope with demand because it is lacking in both the means and the technical capability of management. The problem will receive better treatment with centralized utilization and control by the brigade. After centralization of control by the brigade, the Lianjiao brigade of Hainan county established and strengthened its brigade agricultural machinery control station. One of the deputy secretaries of the party branch was put in charge of the work concerning agricultural machinery. He has built up an agricultural machinery force which is both industrial and agricultural as well as red and expert. Of the 38 tractor operators in the station, every one can drive a tractor and operate the manual transplanter. In addition to this, 20 can repair tractors and other agricultural machinery, 16 can drive combine harvesters, 10 can drive mechanical transplanters, 3 can operate lathes and 25 can do welding. This is an important task force for constructing modernized agriculture. With the strengthening of party leadership and control of agricultural machinery, agricultural output has increased each year. There has been an increase of 11.3 percent in food output in 1976 as compared with 1975. This has manifested the fact that mechanization is the fundamental way out for agriculture.

Thirdly, agricultural mechanization requires the equipping of various kinds of agricultural machinery to form a complete set of agricultural implements. The production team cannot afford this due to the smallness of its scale and the lack of capital. The integration of agricultural, forestry and pastoral production in agriculture constitutes a complex department of production. Different production departments and production items requires different agricultural implements for their respective mechanization. Furthermore, agricultural production has a very marked seasonal nature. This is especially so with cultivation. During the busy season, it requires several kinds of machinery to operate simultaneously. In certain agricultural seasons, a single production process will require more manpower and mechanical power all at the same time to fulfill the various tasks of harvesting, plowing, sowing and so forth. Only thus can the quality be guaranteed and production and output increased. If not, the agricultural season will be delayed which will result in a reduction of production. If each team uses its own machinery, the mechanical power will be dispersed, the area of operation will be confined and the capacity to make breakthroughs will be very low. In this case, even in the busiest season, one can only concentrate on using a single tractor and confine to one area of mechanized operation while all other operations in the field have to rely on manual labor. This has obstructed the development of agricultural productivity. Agricultural mechanization will be speeded up when everything is organized under the centralized control of the brigade. A single brigade will centrally utilize and control over 10 large- and medium-sized tractors and handguided tractors. There will also be transplanters and harvesters. This will effectively raise the level of equipment of agriculture and provide a more complete set of agricultural implements. Before the implementation of centralized control by the brigade, the Lianjiao brigade of Nanhai County operated a medium-sized tractor and the production teams operated nine handguided tractors. After centralized control, the number of agricultural machines increased rapidly. The whole brigade now owns a medium-sized tractor, 11 handguided tractors, a boat-type tractor, 2 small combine-harvesters, 3 windrow-mowers, 2 mechanical transplanters, 60 manual transplanters, 3 mechanized boats, 4 10-horsepower diesel engines, a 50,000 watt generator, a 10-ton concrete fuel dump and a whole range of small mechanized and semimechanized agricultural implements. The fixed asset on agricultural machinery amounts to 208,900 yuan.

This has basically realized the mechanization and semimechanization of cultivation, irrigation, sowing, threshing, plant protection, the processing of agricultural and sideline products and fodder, transportation and so forth. It has even achieved 18 percent of the mechanization of rice harvesting, which is comparatively more difficult to achieve. The ditching of wheat cultivation and drying of grain are gradually being mechanized. Its agricultural production is advancing toward overall mechanization.

Thus, it can be seen that centralized control by the brigade emerges and develops upon the foundation of the practice of the masses and accords with the demand of the law for the relations of production to conform with the nature of the productive forces. It is a necessary product of the development of agricultural mechanization. There are many advantages in practicing centralized control by the brigade: 1) It has further strengthened the leadership of the party over the mechanization of agriculture and helped to improve the implementation of party lines and policies. It has also mobilized the enthusiasm of the masses of cadres for mechanization and for their persistence in the correct orientation of constructing socialist modernized agriculture. This has accelerated the pace of agricultural mechanization. 2) It has strengthened the construction of the forces of agricultural machinery and raised the level of equipment and completeness of agricultural implements. It has broken through the restrictions of the production team and implemented socialist large-scale coordination in agricultural production. This has improved the effectiveness of agricultural machinery, insured the schedule of the agricultural seasons and promoted the increased output of agricultural production. 3) It has strengthened the management of agricultural machinery, improved the conditions and efficiency of operation of agricultural implements, lowered the cost of operation and improved the economic effects of using agricultural machinery. 4) It has helped the production teams which are having difficulties developing production. It is beneficial to narrowing the differences between rich and poor production teams. It has also enriched the economy at the brigade level, thus preparing the conditions for the transition to the brigade as the basic accounting unit. Centralized control by the brigade has manifested the superiority of the people's commune. This is particularly suitable for the situations in Guangdong and provides a new experience of greater, faster, better and more economic development of agricultural mechanization which is worth popularizing.

III. Several Questions Concerning the Popularization of Centralized Control by the Brigade.

To popularize centralized utilization and control of principal agricultural machinery such as tractors involves a large number of areas and has a strong policy orientation. In addition to strengthening the leadership, improving ideological work, relying on the masses and following the mass line, we still have to pay attention to the following questions:

First, clarify the objective of centralized control by the brigade and correctly grasp hold of and positively create the conditions for centralized control by the brigade. The implementation of centralized control by the brigade aims at mobilizing the enthusiasm of the collective economy at the brigade level to achieving greater, faster, better and more economic development of agricultural mechanization. This will promote the increase of agricultural modernization. This is not just a matter of a formality. If we do not base our understanding on this and carry it out in the various areas under centralized control, we will create more problems than we solve. To attain our objective, the most important thing is to correctly grasp hold of and positively create the conditions for centralized control. According to the experiences of the three brigades of Shangyue, Hushan and Lianjiao, there are three conditions for centralized control. 1) Agricultural mechanization has reached a certain level and the majority of production teams have their own handguided tractors. This is the foundation for demanding centralized control. 2) The existence of a sound and powerful agricultural management organization and a scientific management system. 3) The gradual formation of a corresponding capacity for maintenance and good rear supply work. These are put forward with reference to the form of centralized control which does not change the ownership of agricultural machinery. As for the form which practice brigade ownership and centralized control, there should be a good economic foundation of the brigade in addition to the three conditions mentioned above. We must first of all insist on having these conditions before talking about the popularization of centralized control. Secondly, we must positively create the conditions and not wait for them negatively on the pretext of not having them. We must be realistic in our investigation and research. We must summarize our experience conscientiously and provide timely treatment to the problems arising from the process of popularization. We must try our best to develop each individual project only when the conditions are ripe. We must develop as well as consolidate. We are opposed to noninterference or coercion by administrative decrees. We are also opposed to any rash mass actions.

Secondly, adhere to party policies while adopting different forms of centralized control in line with local conditions. Primarily, the form of ownership should not be changed. The first form of centralized control by the brigade currently adopted in Guangdong Province requires no change of ownership of agricultural machinery. Centralized utilization and control by the brigade not only resolves the contradiction of the inability of team ownership and utilization to bring its mechanical power into full play and to manage it well. It is also suitable for the present system of "basing the three levels of ownership on the team." This is more acceptable to the production teams and beneficial to creating the conditions for the transition to brigade ownership. At present, this is the principal and most suitable form to be adopted.

In areas possessing the necessary conditions, we can also change the ownership by turning over to the brigade the amount of money after conversion of the machinery. This is also permissible under present policies since the system of "basing the three levels of ownership on the team" not only does not exclude but actually demands the gradual development of the economy at the brigade level under the precondition of benefitting the economic development at the level of the production team. It is an important aspect within the authority of the brigade to demand better utilization and management of brigade owned agricultural machinery. Therefore, one should not sweepingly regard the change of ownership of agricultural machinery as the "blowing of the Communist wind" and adoption of egalitarianism and transfer of ownership against the production teams. However, since the economy at the brigade level is rather weak at present, this form of centralized control will remain a minority.

No matter which kind of centralized control is adopted or whether it is yearlong or just during the busy season, the principle of voluntary participation and mutual benefit and the principle of exchange of equal value should be upheld. Only when participation is on a voluntary basis can there be any enthusiasm to consolidate and persist. Only mutual benefits can produce genuine voluntary participation. We must pay attention to the policies. For the first form of centralized control, the teams possessing the machinery should have priorities for using the agricultural machinery, because ownership must be realized through the right of use. The income derived from the operation of tractors should go to the machine owning teams. Each tractor should have its own account, and the income for the machinery owning team must be honored to give expression to ownership by the production team in the area of income distribution. Furthermore, a level of fees should be centrally and rationally stipulated and collected in time. The machinery should also be rationally allocated and fulfill the various tasks of operation in time and in standard quality and quantity. Maintenance work should also be improved to insure that the machinery will be repaired whenever it breaks down and that its effective use is guaranteed. The relationship between machinery owning teams and those having no machinery as well as the relationship between production brigades and production teams should be handled properly. As for the second form of centralized control, the policy of mutual benefit must be carried through. The converted price for agricultural machinery must be reasonable and the proceeds must be forwarded to the machinery owning teams on time. From now on, the capital needed for the further development of agricultural mechanization must be raised by the production brigades themselves. There should not be any egalitarianism or transfer of ownership. If the economic conditions of the brigade do not permit and the capacity to compensate and raise capital is poor, the first form of centralized control which does not change the ownership should be adopted instead of the practice of turning the converted price to the brigade. The practice of sharing financial responsibilities among production teams for the conversion of the machinery according to the area under cultivation and putting the tractors under brigade ownership should be abolished. Thirdly, improve the work of management conscientiously. Centralized control by the brigade is not a simple administrative transfer of the rights of utilization and control of agricultural machinery. It is a reform of the form of management in accord with the development of the productive forces. The reality and superiority of centralized control can be manifested only when management is strengthened and the machinery under good management and utilization. This should include high efficiency, good quality, low cost of production, safe production, keeping the schedule of the agricultural seasons, guaranteed quality and quantity of operation and increased production and output. Centralized control will lose its meaning and significance if there is centralization without control, low efficiency, poor quality, high cost of production and plenty of accidents. It must be pointed out that, before centralization, the conditions of utilization and control affected only a small area. However, when the agricultural machinery dispersed among the production teams are centralized under the brigade, the organization of labor will be enlarged, the area of operation expanded, the number of personnel and machinery increased and the division of labor more minute. Any mismanagement will cause serious loss and waste. A small number of our brigades have trouble with centralized control. Among the many reasons, the most important is the failure to improve management work. To improve management work, we must first focus our work on production and construction. The various areas of management work should be improved to serve agricultural production by having high efficiency, superior quality, low consumption and safety. The erroneous practice of turning away from agriculture to earn money through transportation assignment must be opposed. Secondly, agricultural machinery stationed at the brigade level should be established and sound leadership of such stations should be built up. A deputy secretary or a committee member of the party branch should be put in charge of the work of agricultural machinery and concurrently hold the post of stationmaster of the agricultural machinery station. There should also be one to two full-time deputy stationmasters and a corresponding number of maintenance personnel and storage accountants. Thirdly, pay special attention to the organizational and ideological construction of the agricultural machinery forces. Technological training should be improved in order to build up an agricultural machinery force which is both red and expert. This is the assurance for better management and utilization of agricultural machinery. Finally, sound and rational rules and regulations should be set up. This should include the system of study and training of agricultural machinery personnel, the responsibilities of the various posts, the safety of production, quality control, the maintenance of machinery, economic accounting, the storage and distribution and making of statistical reports on fuel, and so forth. The "four great managements" of planning, labor, machinery work and finance should be improved so that centralized control can be brought in line with genuinely scientific management.

CSO: 4007

'XINHUA' INTERVIEWS INSTITUTE OFFICIAL ON SOIL UTILIZATION

OW130816 Beijing XINHUA in English 0712 GMT 13 Dec 79 OW

[Text] Chengdu, 13 Dec (XINHUA)—China's farm output could be raised by many millions of tons a year if adequate amounts of fertilizer were used on all low-yield farmland and scientific farming methods adopted, said Professor Xiong Yi, director of the Nanjing Institute of Pedology of the Chinese Academy of Sciences, in an interview with XINHUA.

Professor Xiong, a noted soil scientist, was attending the fourth national conference and 1979 forum of the Chinese Society of Pedology which was held in Chengdu, capital city of Sichuan Province.

He said that more than 30 per cent of China's 100 million hectares of farmland has below average yields. Such farmland has a greater potential for increased output than high-yield fields. Except for land where yields are affected by salinity or other adverse conditions, the main cause of low yields is lack of fertilizer.

Use of fertilizer in China at present is not rational, Professor Xiong explained. Concentrated application of fertilizer on high-yield fields has reduced its rate of effectiveness. For better economic results, more fertilizer should be applied on large areas of poor soil. Investment to raise yields on the low-yield fields will be lower than that needed for high-yield fields. Transformation of low-yield farmland must be given priority.

The professor criticized the practice of extending the area of farmland producing two to three crops a year without adequate investigation. He said that methods of cultivation, fertilizer application, irrigation and drainage all directly bear on soil fertility. Only by adopting scientific farming methods suited to local conditions and paying attention to soil fertility, can the land give high, stable yields.

China has 9.6 million square kilometres of land and a wide range of soil types, he said. The conditions exist for a modern diversified agriculture embracing farming, forestry, animal husbandry, fishery and other side-lines. The vast grasslands and mountainous regions suitable for forestry should be better utilized.

More than 350 experts attended the Chengdu meeting. Altogether 400 papers were submitted.

Fifty-nine council members were elected to the Chinese Society of Pedology, one place being reserved for a council member from Taiwan Province.

CSO: 4020

BRIEFS

AGRICULTURAL SOCIETY ESTABLISHED--Hangzhou, 26 Nov (XINHUA)--A Chinese agricultural engineering society was set up at a meeting held recently in Hangzhou, Zehjiang Province with Zhu Rong, vice-minister of agriculture, as its president. The society will sponsor lectures and forums, keep track of and recommend important scientific research results, and arrange academic exchanges with foreign scientists. Research in agricultural engineering covers agricultural mechanization, farmland improvement and other construction projects, rural electrification and other engineering sciences related to the development of agriculture. [OW260748 Beijing XINHUA in English 0711 GMT 26 Nov 79 OW]

CSO: 4020

'BEIJING RIBAO' ON SCIENTIFIC METHODS APPLIED TO PIG RAISING

OW040846 Beijing XINHUA in English 0726 GMT 4 Dec 79 OW

[Text] Beijing, 4 Dec (XINHUA)--Beijing peasant Jin Liancheng, who made a scientific study of pig feed, bred eight pigs last year whose average weight was 111.5 kilograms, reports the BEIJING DAILY in a frontpage feature story today. The heaviest of the eight pigs weighed 138 kilograms at the age of five months.

Jin Liancheng, now in his forties, subscribed to several scientific journals in order to improve his work in pig breeding. He found that the main cause for the slow growth of local pigs was insufficient nutrients in the feed. He worked out a special pig feed composed of corn, barley, wheat bran, rice chaff and salt with added vitamins and other ingredients. Rather than mixing the feed with water he put the dry powdered feed and cold water into the pig sties so that the pigs could eat at any time. His successful experience in raising pigs at a faster rate is now being popularized throughout Tongxian County on the outskirts of Beijing.

The BEIJING DAILY says in a short commentary that Jin Liancheng's method is not entirely new, but it is new for many peasants who are not aware of the developments of modern science. So, the paper says, one of the important tasks for scientists is to popularize such scientific methods and urge the peasants to apply science in their daily work. China's agricultural modernization requires more peasants like Jin Liancheng. If more peasants study and apply scientific methods in raising pigs, chickens, cattle and sheep as well as in farming, forestry, and side-line occupations, the results will be very inspiring, the commentary says.

CSO: 4020

BRIEFS

SUGAR PRODUCTION--Fuzhou, 5 Nov--By tapping potential and introducing technical innovations, the existing sugar mills in Fujian, one of China's major sugar-producing areas, have succeeded in increasing their daily sugarcane pressing capacity by 10,200 dun. This increase is equal to the output of 20 newly built medium-sized mills, each having a daily pressing capacity of 500 dun, but the cost involved is only around 40 percent of building new mills. Sugarcane production in Fujian has registered a marked increase over the past few years. In the last sugar-producing season, the province produced more than 330,000 dun of sugar. [Beijing XINHUA Domestic Service in Chinese 0236 GMT 5 Nov 79 OW]

CSO: 4007

RURAL PROCUREMENT PRICES INCREASED

HK011702 Guangzhou Guangdong Provincial Service in Mandarin 2330 GMT
25 Oct 79 HK

[Summary] Guangdong has increased the prices of 24 categories of agricultural and sideline products this year. Since 1 April, the procurement prices of grain crops have increased by from 13.6 to 28.57 percent, including a 21.58 percent increase in the procurement price of rice. The price of grain procured after fulfilling the procurement quota has been increased by 50 percent. Procurement prices for peanuts have been increased by 32.69 percent and peanut oil by 38.55 percent. The procurement prices of various other edible oils have been raised by from 9.26 percent to 38.55 percent, with a 50 percent increase in the price paid for excess amounts procured after the fulfillment of procurement quotas. The procurement price of sugarcane is being raised by an average of 20 percent from the beginning of the 1979-80 refining season, with a 25 percent increase for amounts procured above the plan. The procurement price of pigs is being raised by an average of 25.33 percent, with a further 6 percent increase for pigs weighing more than 140 jin. The average procurement prices of freshwater fish are being raised by 30 percent and marine products by 21.31 percent. The timber procurement price has been raised by an average of 29.2' percent throughout the province. Prices of various other agricultural and sideline products have been raised in varying degrees. At the same time, prices of various materials used in agriculture have been reduced, including plastic sheeting, diesel motors, and machine parts. Price reductions range from 12.35 to 33.3 percent. It is estimated that the province's peasants can increase income by 450 million yuan this year, an average of over 10 yuan per peasant.

CSO: 4007

BRIEFS

GUANGDONG AGRICULTURE FORUM--The Guangdong agriculture committee held a forum of the directors of the agricultural scientific research institutes in Guangzhou from 22 to 26 November. The forum discussed the issue on how to further run the agricultural scientific research institutes well. Wang De, secretary of the Guangdong Provincial CCP Committee, pointed out that to develop agriculture in Guangdong, it is necessary to launch scientific research. Wang De also made a summation toward the end of the forum, he revealed that half of the rice fields in Guangdong are low-yielding farmland. Therefore, transforming this low-yielding farmland can greatly increase grain output. [Guangzhou Guangdong Provincial Service in Mandarin 1130 GMT 28 Nov 79 HK]

GUANGZHOU CUTS COMMODITY PRICES--To develop animal breeding, reduce the cost of animal husbandry and reduce burdens of commune members and communes and brigades, the Guangzhou municipal price control departments decided to reduce the retail prices of 34 kinds of fodder chaff. The rate of price cuts generally ranged from 7 to 30 percent. All municipal counties, suburban areas, Huangpu District and all commune grain offices have started to cut according to schedule the prices of the 34 kinds of fodder chaff supplied to communes and brigades and commune members. [Guangzhou City Service in Cantonese 0430 GMT 1 Dec 79 HK]

CSO: 4007

ECONOMIC PROBLEMS IN GUIZHOU FORESTRY COMMUNES

Beijing RENMIN RIBAO in Chinese 8 Oct 79 p 2

[Article by XINHUA staff writers Zhang Zhilin [1728 0037 6689], Zhao Fuyuan [6392 6534 0037] and Liu Zifu [0491 1311 1381]: "Why are the Forestry Commune Members in Southeast Guizhou Still Unable to Prosper?"]

[Text] Why are the forestry commune members in southeast Guizhou still unable to prosper? Recently we conducted interviews in Guizhou's southeast forest region a timber forest base, and the forestry area commune members strongly protested: "Everyone says that the forestry areas have banks in the mountains, however our bank is not located in our mountains but rather in other areas." There is a sharp contrast here between the abundance of natural resources and the poverty of livelihood. The commune members vigorously demand a change of these conditions.

In order to change these conditions it is necessary to discover their underlying reasons. A number of county and commune leaders and comrades in the supply and marketing, commune enterprise and forestry departments believe that there are three primary reasons:

1. Comprehensive utilization of the forestry region is very poor, with extravagant waste of natural resources. All the places we visited, including Leishan [7191 1472], Taijiang [0669 3068], Jianhe [0494 3109], Rongjiang [2827 3068], Congjiang [1783 3068] and Jinbing [6930 1456], suffered from this problem. Take the comprehensive utilization of timber, for example; these counties produce great quantities of logs and all the roots, tips, branches, and forks are all burned in the mountains at great waste. In all counties the timber processing capability is very weak; generally each county has a single timber processing plant or wooden ware factory which produces wooden farm implements, furniture or other implements. It seems that all are made with good wood while the leftover strips, edge barks, wood shavings and sawdust are not used. As for the comprehensive utilization of forestry resources, that is even worse. To this day only a small minority of commune members engage in artificial cultivation of fungus

(Auricularia Auricula-judae), mushrooms and pinetree Poris cocos, while some counties or communes have constructed rosin plants or aromatic oils processing plants. Nontheless, in terms of technology and equipment, comprehensive utilization of this type just does not pass muster. For example, in the artificial cultivation of fungus, mushrooms and pinetree Poris cocos, generally only the immediate task is seen, "all trees on mountains are felled," each and every tree is cut for a single planting of mushroom spores, resulting in a great waste of useful materials.

2. Policy restrictions are excessively rigid and there are too many tax offices; phenomenon such as burning and rotting is "reasonable," and comprehensive utilization is "against regulations" abound in great strength. In the Yongle [3057 2867] district of Leishan county there is an abundance of red bayberry and Litsea cubeba, but they only rot on the mountains because the supply and marketing cooperatives are prohibited from purchasing them. This county has a yearly output of tens of millions of stalks of assorted bamboo, but it is left to die. This year the county Party Committee worked hard on this matter and finally received permission from the forestry department for the supply and marketing cooperatives to purchase it, though they purchased only 3 million stalks. In addition, some regulations are unreasonable and policies are not uniform which is a setback for the positive spirit of the commune members in undertaking comprehensive utilization. According to incomplete statistics for a few counties, their utilization rate of wood materials is approximately 60 per cent and the usage rate of leftover materials in the forests is only 30 per cent. This is a great waste of society's wealth and, as a result, the commune members' cash distribution is generally about 40-50 yuan only.

3. No attention is given to proportions within forestry. Emphasis is placed on commercial forests with no development of economic forests. They cannot use such shortsighted plans for longterm development and are unable to let a forest to support itself. There is a great difference between having only a commercial forest and having both commercial and economic forests. Commercial forests generally take longer to grow. The relatively fast-growing China fir, for example, takes about 20 years from planting to lumbering. The purchase price of timber is quite low and figuring on a base of 15 cubic meters of timber per mu, in 20 years the yearly income per mu of timber is something over 21 yuan. By relying only on developing commercial forests and cutting a few trees to sell the commune members will never prosper no matter what. According to the forest management experience of forestry area communes, if proper attention is paid to the proportion of tree types, and the areas in nearby mountains and lower mountains are suitably planted with economic forests, some tong trees, teaseed oil trees, Chinese tallow trees, lacquer trees, Litsea cubeba trees, palm and walnut trees, not only will there be short term benefits, the value will far exceed the income derived from selling a few logs.

4. The rate of timber production is low. Cutting down trees from a section of a mountain yields only a few cubic meters of lumber and has no great impact on commune members' income. There are two problems which influence

the productivity rate in southeastern Guizhou: one is that the state purchase policy does not suit conditions in that area as it includes only the lumbering and shipping of China fir and pine trees and does not include the other assorted woods. This area is one of mixed conifer and broadleaf tree forests. Most forests are broadleaf trees and in addition to China fir and pines, there are great amounts of other trees. But, for some unknown reason, the state does not purchase them, not only this but also prohibits the production locale from handling the matter itself, so that such trees are left to grow and die untouched. The second is that the purchase price for lumber is so low, lower even than the cost of cut firewood, so that the commune members are unconcerned about the lumber productivity rate. Take pinewood for example, the state purchase price (including transportation) for each cubic meter is 24 yuan. If it is sold as firewood, according to the market price, each load is worth 1.5 yuan and 100 loads are equal to about 4 cubic meters, so that selling it for firewood generates 150 yuan while selling it to the state generates only 96 juan. According to calculations, Taijiang county burns about 90,000 cubic meters of good wood per year.

11582
CSO: 4007

HEILONGJIANG

TWO-MAN WORK UNIT ACHIEVES HUGE GRAIN YIELD

Beijing RENMIN RIBAO in Chinese 9 Oct 79 p 1

[Article by XINHUA staff writer Zhou Peiqi [0719 0160 3825]: "Liu Tingji [0491 1694 0679] and Chen Shuyu [7115 6615 1342] Each Produce Over 340,000 Jin of Wheat: Thus Work Unit of the Daqing Oilfield May 7 State Farm Demonstrates the Power of Mechanization"]

[Text] XINHUA, Daqing 8 Oct—Our staff member Zhou Peiqi reports: Liu Taingji and his young assistant Chen Shouyu, of the Daqing May 7 State Farm, compose a two-man work unit which employs a set of Chinese-made agricultural implements to cultivate 1,950 mu including 1,700 mu of wheat and 250 mu of soybeans. The wheat crop has already been harvested and according to the May 7 State Farm Unit which checked and accepted it, they produced an average of 345,000 jin of grain per man, equal to the yearly grain ration for 500 people. Most of the wheat they planted were improved varieties. Assuming that 80 percent of the harvested grain was seed grain and 20 percent was second-grade commercial grain, the output value generated by each person would be 67,233.60 yuan, which is higher than the [average] work productivity rate of all petroleum staff and workers. In addition, they each planted 125 mu of soybeans which have yet to be harvested, and if this were figured in there would be an even higher labor productivity rate.

The main reason why Liu Tingji's work unit was able to reach such a high work productivity rate is because of the full utilization of the power of mechanization in the field work. The work unit has altogether 5 sets of farm implements, including a Dongfang Hong (East is Red) Model 75 caterpillar tractor, a triple-shared plough, a seed spreader, a self-propelled combine harvester, and a Jiefang (Liberation) brand tipper-hopper vehicle. The entire production process from soil preparation, fertilizer application, seeding, chemical weed control and harvesting to field work such as transportation, is all accomplished through mechanization. In addition, they also used improved seeds, selected advanced cultivation technology and carried out scientific management.

Liu Ting'i is now 43 years old. He overcame illiteracy while in the military and later became a tractor operator at Daqing. He is now a member of the standing committee of the Daqing May 7 State Farm party committee. During the past year he and Chen Shouyu repaired and maintained all the machinery, and after the harvest had been moved to the farm yards, the husking, drying and bagging of their wheat were done through a labor-trading system, so that the entire production process did not involve the labors of any other people.

11582
CSO: 4007

BRIEFS

HEILONGJIANG DAIRY PRODUCTS--Harbin, 1 Dec--Heilongjiang Province has fulfilled 1979 dairy production plan ahead of schedule. In the first 10 months of 1979, the province produced some 9,100 tons of dairy products, 23.4 percent more than in the corresponding period for last year. With more than 50 million mu of grassland, Heilongjiang is suitable for raising dairy cows and sheep. Its dairy production accounts for one-fourth of China's total dairy output. [Beijing XINHUA Domestic Service in Chinese 0709 GMT 1 Dec 79 OW]

HEILONGJIANG PREFECTURE ZONING--Nenjiang Prefecture, Heilongjiang, has taken measures to readjust the proportional relationship within agriculture. In accordance with actual conditions, it has divided its 11 counties into 3 different production zones: Namely the agricultural zone, the pastoral zone and the agricultural-pastoral zone. This year, the prefecture has planted forage grass and built shelter-belt and timber forest on 313,000 mu of land which is no longer used for farming. [Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 2 Dec 79 OW]

CSO: 4007

BRIEFS

HUNAN WATER CONSERVANCY PROJECT--Changsha, 2 Dec--The Dazhen [1129 1101] District irrigation project, a major national water conservancy project in Shaoyang Prefecture, Hunan, has been completed. The project starts from Mount Wanfeng in Xinning County in the south and ends at Ziyang River in Longhui County in the north, and comprises 4 medium-size dams, over 60 kilometers of main ditches, a 5,600-meter tunnel and 5,500 meters of inverted siphons. Through some 1,100 kilometers of large and small ditches, the project is linked to more than 200 small reservoirs and over 20,000 ponds, irrigating 540,000 mu of cropland in Xinning, Wugang, Shaoyang, Dongkou and Longhui counties. It also comprises 7 hydroelectric power stations with a total generating capacity of over 6,000 kilowatts. The irrigation district covers an area of 2,680 square kilometers of the drought-affected corridor in Shaoyang Prefecture. [Beijing XINHUA Domestic Service in Chinese 0318 GMT 2 Dec 79 OW]

CSO: 4007

JIANGSU ADJUSTS COMMUNE ENTERPRISES

Beijing RENMIN RIBAO in Chinese 11 Oct 79 p 1

[Article by staff writers: "Jiangsu Adjusts Commune Enterprises To Gain Foothold for Progress"]

[Text] Our staff reporters Yuan Yanghe [5913 7403 0735] and Hua Huiyi [5478 1920 3015] report that all levels of the Jiangsu economic departments leadership positively aided the rural commune enterprises to strengthen planning, reduce blindness, and enable the commune enterprises to continuously achieve new progress during the adjustment of the national economy. By the end of this July the gross output value was 8 percent higher than at the same time last year, and 10 of the province's 14 prefectures and municipalities showed growth. The 3 municipalities Changzhou [1603 1558], Wuxi [3541 6932] and Xuzhou [1776 1558] showed increases ranging from 15 to 30 percent. Suzhou [5685 1558] prefecture with a higher base, had growth of 19.5 percent.

In 1978 the Jiangsu province income from commune enterprises stood at 43 percent of the gross income of the three economic levels of the rural people's communes. However, in the past, there existed a certain blindness in the counties and prefectures' development of commune enterprises. Some communes always looked to see which products were most profitable and then produced them, or saw what others were doing and did exactly the same. This resulted in the development of too many similar plants and excessive centralization. Some counties, for example, had several tons of hoes factories each. Some enterprises did not thoroughly utilize local resources and tried to "cook meals without rice," making production unstable. Some enterprises did not change according to market need and failed to make timely product changes and to increase the product variety, sizes and colors, resulting in product overstocks. Since the beginning of this year Jiangsu province has summed up its experiences. Each area took a positive attitude, adjusting and reorganizing the commune enterprises, greatly strengthening sales effectiveness and satisfying product needs. While increasing production quantity they also strongly grasped quality. All products in continual production had increases of variety, color and size in response to market demands. All products suffering from low quality, lack of demand and insoluble material supply problems underwent reorganization and product change. In the reorganization of Qidong [0796 2639] county the knitting industry grew 86 percent over the same period last year (January to July), the clothing industry increased by over three-fold, and the construction materials industry grew 54 percent.

During the adjustments the Jiangsu commune enterprises paid attention to developing their own specialties, relying on market adjustments in carrying forth the battle. The multi-product plant of Changan [7022 1344] commune in Wuxi county originally produced shoes and clothing, then later because of a shortage of chemical fiber fabrics, production problems developed. During the adjustment they utilized the existent equipment and with a positive spirit successfully experimented with producing machine-sewn gloves for export, and followed up by firmly grasping equipment renovation, opened up production lines and became an established place of production for foreign trade. This year's planned production is 1.05 million yuan. During the first half year, production worth 1.06 million yuan was completed. These facts prove that commune enterprises are "small boats that can change direction quickly," and that effective results will soon appear if one is willing to use one's head to find a way out.

Some Jiangsu commune enterprises adopted measures to suit local conditions, used their own strong points, gave vent to their special characteristics, tended towards the beneficial and avoided the harmful, and were able to achieve steady advances in production. In areas where materials are relatively abundant they energetically developed the raw materials industry; areas with an excellent industrial base and strong technology developed their own special products and made an effort to increase their product variety and raise product quality. Beiqiao [0554 2890] commune in Wuxian [0702 4905] county utilized the traditional embroidery arts to produce over 20 types of embroidered shirts which were sold throughout Southeast Asia where they were much appreciated. Recently, they have produced yet another type of snake skin glove which has good sales in Canada and Sweden. In Gaochun [7559 3196] the Cangxi [3318 3305] plastics plant coined the slogan "light industry should be adaptable, the products must be new, the technology must be high level, and the consumers must be satisfied." In reforming their technology they added over 20 new products. While many plastics industries in the county were faced with difficult conditions, this plant not only held its ground but also accomplished excellent production developments.

11582
CSO: 4407

BRIEFS

PESTICIDE PRICES--Nanjing, 26 Oct--The reduction in the price of seven varieties of pesticide throughout the province of Jiangsu in East China this year will have the result of diminishing production costs of the province's rural communes by 1.4 million yuan annually. Price reductions for the seven varieties of pesticide range from 4.3 to 27 percent. While raising the purchase prices paid to producers for major farm products this year, China is reducing the prices of some items for agricultural use in order to boost agricultural production and improve the peasants life. [Beijing XINHUA in English 1216 GMT 26 Oct 79 OW]

CSO: 4020

BRIEFS

NEI MONGGOL PASTORAL BASES—Hohhot, 5 Dec—Nei Monggol has decided to establish 10 pastoral bases to accelerate the development of animal husbandry. Seven are for the raising of sheep of various categories and the other three are respectively for the raising of cattle, or camels, and of hogs, ducks and rabbits. [Beijing XINHUA Domestic Service in Chinese 0750 GMT 5 Dec 79 OW]

CSO: 4007

BRIEFS

XINJIANG COTTON PICKING—Xinjiang Autonomous Regional People's Government on 22 November held a telephone conference, calling on all localities to complete this year's cotton harvesting as soon as possible. The conference instructed all localities to give priority to the task of state purchase of cotton, to organize shock-force teams for cotton picking and selling, to transport all picked cotton to storing place, to limit losses to a minimum, to purchase all cotton that is supposed to be purchased by the state and to organize all departments concerned, such as commercial, industrial, communications and banking departments, to coordinate their efforts to insure the success of purchase, processing, proper storage and shipping of harvested cotton. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 27 Nov 79 OW]

XINJIANG WATER RESOURCES—Urumqi, 4 Dec—Through personal survey over the past 3 years, Yang Lipu, chairman of the academic committee of the Xinjiang Geography Institute under the PRC Academy of Sciences, has recently decided that there is a total of 320 rivers in Xinjiang and the total flow volume reaches 77.7 billion cubic meters. So far, this is the most accurate figures made, judged by the relevant departments; they may be used as the basis for developing and exploiting the water conservancy resources in the region. [Beijing XINHUA Domestic Service in Chinese 0713 GMT 4 Dec 79 OW]

CSO: 4007

II. PUBLICATIONS

TABLE OF CONTENTS OF'KUNCHONG ZHISHI' NO 3, MAY 1979

Beijing KUNCHONG ZHISHI [ENTOMOLOGICAL KNOWLEDGE] in Chinese No 3, May 79 inside front cover

[Text] Research Report Exchange of Experience

Application of Female Moth Dissection Data in Forecasting Rice Leaf Rollers...Zhang Xiaoxi [1728 1321 5032] et al of Jiangsu College of Agriculture....97

Research on Quantitative Prediction and Forecasting of Corn Borers.... Gu Chengyu [7357 [illegible] 3768] et al of Nenjiang District Institute of Agricultural Sciences, Heilongjiang Province....99

Preliminary Study on the Mating Habit of Pink Boll Worms...Chuansha County Plant Protection and Inspection Station, Shanghai....104

Preliminary Study on the Synthesis of Miduochong (Methomyl, Lannate) and Its Insecticide Effect...Shi Junyue [4258 0193 1547] of Pharmacological Toxicity Office, Institute of Zoology, Chinese Academy of Sciences....110

Investigation of Growth of Body Length in Larva Stage of Twenty-six Species of Common Agricultural and Forestry Insects...Hu Xianbin [5170 6343 1755] of Jiujiang County Bureau of Agriculture and Forestry, Jiangxi Province....114

Preliminary Investigation of the Problem of Importance of Sex-pheromone Trapping in the Prevention and Control of Plutella xylostella (L.) ...Plant Protection Subjects Group, Vegetable Office, Horticulture Institute, Zhejiang Provincial Academy of Agriculture et al....117

Preliminary Report of Observation of Purple Corn Borer (Ostrinia scapulalis (Walker) in Shawan County, Xinjiang Province...Xu Haoran [6079 3185 3544] et al of Shawan County Agricultural Technology Station, Xinjiang Province....120

Preliminary Research on Hydrillodes morosa Butler...You Qijing [1429 0366 0311] et al of Guangxi Institute of Botany....122

Experiment With Using Coriaria sinica Maxim Leaves to Raise Castor Silkworms...Li Zhongkai [2621 1813 1956] of Silkworm and Mulberry Experimental Station, Xiangxi Tujia and Miao Nationalities Autonomous Prefecture, Hunan Province....125

Basic Knowledge

Some Basic Propagation Characteristics of Insects...Guo Fu [6753 6744] of Institute of Zoology, Chinese Academy of Sciences....................128
Parasitic Wasps of Chinese Rice Plant Skipper (I) Jifeng [Family Ichneumonidae]...He Junhua [0149 0193 5478] of Zhejiang University of Agriculture...132
Three Species of Round Scales Injuring Fruit Trees of North China... Tang Bengde [3282 4366 1795] of Shanxi College of Agriculture..........135

Experimental Techniques

Dissection of Internal Reproduction System of Tung-oil Tree [Aleurites fordii] Geometrid (Buzura suppressaria Guenee)...Wang Wenxue [3769 0795 1331] of Forest Protection Teaching and Research Group, Central South College of Forestry......................................137

Scientific Activity

Research Condition of Techniques of Mating Interference for the Prevention and Control of Pests in Foreign Countries...Shi Qiguang [4558 1142 0342] of Shanghai Institute of Entomology, Chinese Academy of Sciences........139

Scientific Discussions

How Many Species of Cotton Tetranichid Mites (Red Spiders) Are There in China?...Wang Huifu [3769 1979 5346] of Institute of Zoology, Chinese Academy of Sciences..144

Brief News of Conferences

The Sixteenth International Entomological Conference...Chen Yonglin [7115 3057 2651] of Institute of Zoology, Chinese Academy of Sciences... back cover
A Report of the Fifteenth International Entomological Conference... Wu Shiying [6762 0013 5391] et al of Gansu University of Agriculture..... back cover
National Rice Leaf Roller Cooperative Research Conference...journal........127
National Cooperative Research Conference on Rice Brown Planthopper... journal...127
Entomological Society and Plant Protection Society of Jiangxi Province Held Joint Conference...Plant Protection Station, Jiangxi Province......138
Selective Purchase of Jinji Brand Insect Needles [for Preparing Insect Specimens] is Invited...[Suzhou Medical and Therapeutic Products Plant, Jiangsu Province]...124

6168
CSO: 4007

TABLE OF CONTENTS OF 'KUNCHONG ZHISHI' NO 4, JULY 1979

Beijing KUNCHONG ZHISHI [ENTOMOLOGICAL KNOWLEDGE] in Chinese No 4, Jul 79 inside front cover

[Text] Research Report Exchange of Experience

Preliminary Observation, Prevention, and Control of Hunting Wasps [Family Vespidae], Inflicting Damage to Fruits...Sun Yizhi [1327 4135 4249] et al of Northwest College of Agriculture....................................145

Investigation of Overwintering Rice Brown Planthoppers in Northern Fukian...Zhang Yixu [1728 1355 4872] et al of Jianyang District Institute of Agriculture, Fukian Province....................................147

A Survey of Ovulation Habits of Cotton Green Plantbug...Plant Protection Station, State-Operated Dazhong Farm, Jiangsu Province..................148

Incidence of Onion Maggots (Family Muscidae) in Beijing Area and Their Prevention and Control, a Preliminary Report...Wang Zun [3769 6690] of Plant Protection Teaching and Research Group, Beijing School of Agriculture..150

Preliminary Observation of Chestnut Moth...Wang Yunzun [3769 0061 1415] of RizhaoCounty Bureau of Forestry, Shandong Province....................153

Bagging Saplings of Fruit Trees to Prevent Chafer Damage...Pang Zhen [1590 7201] et al of Yanbei College of Agriculture, Shanxi Province.....155

Preliminary Observation of Life Habits of Lady Bettles...Li Yajie [2621 0068 2638] of Institute of Forest Pedology, Chinese Academy of Sciences..155

Preliminary Research of Inheritance of 666 [BHC] Resistance in Light-colored Anopheles (Culex pipiens pallens Coq.)...Yu Yuan [0205 3220] of Institute of Parasitology, Chinese Academy of Medical Sciences.......157

Preliminary Observation of Effects of Several Techniques of Sticky Surface [Flypaper] for Capturing Houseflies...Dai Zhiwei [2071 2535 0251] of Tangqiao Section Hospital, Nanshi District, Shanghai..................159

Observation of Ecological Habits of Chinese White Lacewings (Phlebotomus chinensis Newstead)...Wang Chuntai [3769 2504 1132] Nationality Autonomous Region Public Health and Epidemic Prevention Station..161

Results of Laboratory Experiment With Microbiological Prevention and Control of Domestic Termites (Coptotermes formosanus Shiraki)... Li Dong [2621 2767] of Guangdong Institute of Entomology...............162

Control of Grassland Pests With Airplanes...Zhao Huiyuan [6392 6540 0337] et al of Jilin Provincial Institute of Veterinary Medicine.............165

Basic Knowledge

Some Basic Propagation Characteristics of Insects (Continued)...Gu Fu [6753 6744] of Institute of Zoology, Chinese Academy of Sciences.......166
Identifying Common Greenhouse Flour Mites...Wang Ziqing [3769 1311 3237] of Institute of Zoology, Chinese Academy of Sciences..................171

Experimental Techniques

Spatial Distribution of Types of Larvae of Rice Leaf Rollers and Sampling Technique...Jin Derui [6855 1795 6904] of Baiquan College of Agriculture, Henan Province..174
Graphic Technique of Dtermining Time of Occurrence of Rice Stem Borers [Chilo simplex]...Chen Longwen [7115 7893 4489] of Jinggangshan District Institute of Agriculture, Jiangxi Province............................179

Comprehensive Discussion of Special Subjects

Condition of Research on Entomological Anticancer Substances...Liu Chunyi [0491 4783 4135] of Institute of Zoology, Chinese Academy of Sciences..182

Condition of Science and Technology

Progress in Studies on Underground Pests...Wei Hongjun [7614 7703 6874] of Institute of Plant Protection, Chinese Academy of Agricultural Sciences..184
Industrialized Production of Trichogrammatid Wasps in the Soviet Union... Yan Yuhua [0917 3022 7520] of Beijing University of Agriculture........189

Scientific Discussions

Comments on the Nomenclature of Cotton Red Tetranichid Mites (Genus Tetranychus)...Yang Qingshuang [2799 1987 3642] et al of Mites Research Team, Department of Biology, Fudan University..........................191

Brief News of Conferences

Guangdong Provincial Society of Termite Studies Established...Tan Hongzhi [6223 3163 3112] of Guangdong Provincial Institute of Entomology... .... inside back cover
Scientific Discussion Meeting on Prediction and Forecasting Crop Diseases and Pests Held Jointly With the Scientific Discussion Meeting on Spatial Distribution Types of Insects and Their Survey and Sampling...inside back cover

Symposium on Metal Halogenate Insect Trap Lamp Technique Held in Hongzhou ......inside back cover
South China Cotton Region Cooperative Conference on Comprehensive Prevention and Control of Cotton Pests..............................inside back cover
Brief News Announcing the Republication of PLANT PROTECTION and other Journals..inside back cover

6168
CSO: 4007

TABLE OF CONTENTS OF 'ZHONGGUO SHOUYI ZAZHI' NO 6, JUNE 1979

Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE VETERINARY MEDICINE JOURNAL] in Chinese No 6, Jun 79 inside front cover

[Text] Survey Research

Report of Experimental Manufacture of Freeze-dried Vaccine of Chicken Pox Cells...Liaoning Provincial Institute of Veterinary Medicine; Liaoning Provincial Veterinary Medicine Biological Products Plant........1

Research on Acute Abdominal Diseases, First Report: Diagnostic Value of Abdominal Fluid in Acute Abdominal Diseases...Chen Jiapu [7115 1367 3877] Guo Qishou [6753 0796 1108]....................................9

Integrated Chinese Traditional and Western Medicine

Preliminary Understanding of Several Problems in Integrated Chinese Traditional and Western Medicine...Jiang Cisheng [5592 2945 0581].......14

Summary of Experimental Treatment of Artificial [Experimentally Induced] Pig Asthma With Yuxingcao [Houttuynia cordata Thunb.]...Shaoxing District Institute of Agriculture, Zhejiang; Institute of Animal Husbandry and Veterinary Medicine, Zhejiang Academy of Agriculture 19

Modern Knowledge in Veterinary Medicine

General Condition of the Immunologic Fluorescence Technology...Wu Zhongliang [0702 0112 4731]..23

Scientific and Technological Exchange

Chick Newcastle Disease and Its Prevention...Tang Guiyun [0781 1684 0080] Zhou Taichong [0719 3141 0394].................................25

Clinical Data

Diagnostic and Treatment Observation of 345 Cases of Dyspeptic Gastrectasis ...Li Fengting [2621 7364 0080].......................................32

Caesarean Section Delivery for Difficult Birth in Water Buffalo .... Tang Guangwen [0781 1684 0080] Cao Shubin [2580 6615 1755] Liao Peizhi [1675 1014 1807]..35

Understanding in the Use of Double-layered Braces for the Treatment of Limb Fracture in Equine Animals...Li Junyu [2621 0689 3768]..........36

Experience Exchange

Treatment of Piglet Diarrhea With Paotung [Aleurites cordata] Leaves... Gu Aifeng [7357 1947 0023]..13
Prescription for the Treament of Purulent Sores of Domestic Animals... Zhu Yongheng [2612 3057 0077]..37
Cystostomy for the Treatment of Hog Lithiasis of the Urinary Tract and Other Forms of Obstruction of the Urinary Tract...Zhangru Commune Animal Husbandry and Veterinary Medicine Station, Boai County...........38
Use of "Kneeling Down Examination" to Identify and Diagnose Limp in Cows...Guo Sanguang [6753 0005 0342] Liu Jiansui [0491 1696 6659]..39
Injection Solution of a Menthol Preparation for the Treatment of Sunstroke in Pigs, Preliminary Results...Tuxiang Commune Veterinary Station, Fengji County..40
Understanding in Treatment of Hog Scrotal Hernia With Castration... Tang Guansheng [0781 0385 3932]..........................inside back cover

6168
CSO: 4007

TABLE OF CONTENTS OF'ZHONGGUO SHOUYU ZAZHI' NO 8, AUGUST 1979

Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE VETERINARY MEDICINE JOURNAL] in Chinese No 8, Aug 79 inside front cover

[Text] Survey Research

Iron, Copper, Manganese, Zinc Contents of the Liver of Pigs in Nanyang District...Chai Xujiu [5049 2485 0036]....................................1

Clinical Data

Red Cell Transfusion and Other Measures for the Treatment of Hematolysis of Newborn Mules...En Ji [1869 1015]....................................4
Diagnostic and Treatment Report of Necrosis Bacillus Disease in Pigs... Yu Qingqian [0060 1987 6197] et al..5
Two Cases of Pigs Swallowing Steel Wire...Zhang Chaolun [1728 2600 0243]...6
Pharyngeal Sac Abscess and Its Surgical Treatment Technique...Guan Yanong [7070 0068 6593]...7
One Case of Lithiasis of the Urinary Bladder of a Horse...Veterinary Medicine Department, Xinjiang 81 College of Agriculture................9
Investigation of the Method of Locating Pig Cervical Vein on the Body Surface...Luo Keping [5012 0344 1627]....................................11

Integrated Chinese Traditional and Western Veterinary Medicine

Observation of Effects of Integrated Chinese Traditional and Western Treatment for Piglet Diarrhea...Xu Jinyou [1776 2516 0147].............14

Scientific Exchange

Scientific Exchange With Professor Zhang Xianguang [1728 0341 0342], an American Citizen of Chinese Ancestry, of the Department of Domestic Fowl, Michigan State University, A Brief Report.......................16

Public Health Examination of Veterinary Medicine

Survey of Pig Transverse Muscle Echinococcosis, Bulbo myositis, Trichinosis, and Toxoplasmosis in the City of Lanzhou...Health Inspection Department, Lanzhou Joint Meat Plant; Health Inspection Advanced Study Class, Gansu University of Agriculture..........................17

Experience Exchange

Why Is It That Newcastle Disease Vaccination II for Young Chicks Should not be Administered Until After the Age of 7 Days?...Hong Naibin [3163 0035 2430]....................19
Raise Healthy Herds of Chickens...Shanghai Municipal Xinyang Seed Animal Farm....................20
Technique of Castrating Roasters...Peng Yufang [1756 3768 5364]....................21
Hypoglycemia in Newborn Piglets...State-Operated Boai Farm, Henan Province....................23
Improved Technique of Suturing the Nasal Septum of Oxen...Zhang Xinyan [4545 3512 3508]....................24
Experimental Application of Surgical Restoration of Uterine Prolapse in Sows: Comments on "Traditional Method" of Restoration...Wu Xuecont [0702 1331 5115]....................26
One Case of a Large Lame Domestic Animal [a Female Donkey] Cured by Blood Activating and Stasis Dissolving Technique...Li Guixing [2621 6311 5281]....................27
One Case of Perforated Uterus of a Mare Cured by the Technique of Flushing the Uterus and the Abdominal Cavity...Huang Guoxing [7806 0948 5281]....................28
Application of Braces in Open Bone Fracture of Domestic Animals... Ma Chunxiang [7456 2504 4382] et al....................29
Observation of Effects of Electrical Acupuncture Anesthesia in Chang-Yin Acupuncture Point....................30
Spray Shower Technique for the Treatment of Sheep Scrapie...Li Shui [2621 3055]....................3
Understanding in the Use of Neoarsphenaminum [Neoarsaminol] for the Treatment of Pig Asthma...Lin Huajia [2651 5478 0163]...inside back cover

Comprehensive Discussion of Literature

Brief Introduction of Progress in Immunology in Modern Veterinary Medicine ...Zhang Tianduo [1728 1131 6993]....................31
General Condition of Research on Piglet Edema in Foreign Countries... Wang Shirong [3769 0013 2837]....................35

Knowledge of Modern Veterinary Medicine

Fungal Poison of Domestic Fowls...Wang Hongzhang [3769 3163 4545]....................39

Publications Introduced

YANG GENG JI [A COLLECTION OF PAPERS ON FARMING AND ANIMAL HUSBANDRY] Briefly Introduced...Yang Hongdao [2799 1347 6670]....................13

6168
CSO: 4007

END

END OF FICHE

DATE FILMED

1-17-80

JL